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Mapping Careers and Mobility of Doctorate Holders

DRATF GUIDELINES, MODEL QUESTIONNAIRE AND INDICATORS

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MAPPING CAREERS AND MOBILITY OF DOCTORATE HOLDERS: DRAFT GUIDELINES, MODEL QUESTIONNAIRE AND INDICATORS – THE OECD/ UNESCO INSTITUTE FOR STATISTICS/EUROSTAT CAREERS OF DOCTORATE HOLDERS (CDH) PROJECT

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MAPPING CAREERS AND MOBILITY OF DOCTORATE HOLDERS: DRAFT GUIDELINES, MODEL QUESTIONNAIRE AND INDICATORS

THE OECD/UNESCO INSTITUTE FOR STATISTICS/EUROSTAT CAREERS OF DOCTORATE HOLDERS (CDH) PROJECT

ABSTRACT

Human resources are recognised as being key to the creation, commercialisation and diffusion of innovation. Among them, doctorate holders are not only the most qualified in terms of educational attainment, but also those who are specifically trained to conduct research. Not much is known however about their career and mobility patterns on the labour market. This is why the OECD launched in 2004 a collaborative project with the UNESCO Institute for Statistics and Eurostat aimed at developing internationally comparable indicators on the careers and mobility of doctorate holders. An expert group with representatives from national statistical bodies was formed to develop the technical components of the project and start compiling data at national level.

This document presents the three main technical components of the project which are: 1) the methodological guidelines; 2) a core model questionnaire and instruction manual; and 3) the output indicator tables used for reporting data at the international level. The current draft was discussed by the OECD Working Party of National Experts on Science and Technology Indicators (NESTI) in June 2007 and approved for broader diffusion. Its aim is to provide guidance to countries that wish to implement the project at national level. It is planned to work on a new and improved version following the outcomes of the data collection launched in November 2007.

SUIVI DES CARRIÈRES ET DE LA MOBILITÉ DES TITULAIRES DE DOCTORATS : PROPOSITION DE DIRECTIVES, QUESTIONNAIRE MODÈLE ET INDICATEURS

LE PROJET OCDE / INSTITUT STATISTIQUE DE L'UNESCO / EUROSTAT SUR LES CARRIÈRES DES TITULAIRES DE DOCTORATS

RÉSUMÉ

Les ressources humaines ont un rôle déterminant pour la création, la commercialisation et la diffusion d'innovations. Parmi cette population, les titulaires de doctorat ne sont pas seulement ceux les plus qualifiés en terme de niveau d'éducation, mais aussi ceux qui ont été spécifiquement formés à la recherche. Peu de choses sont connues néanmoins sur leurs trajectoires de carrières et de mobilités. C'est pourquoi l'OCDE a lancé en 2004 un projet en collaboration avec l'Institut statistique de l'UNESCO et Eurostat ayant pour objectif de développer des indicateurs sur les carrières et la mobilité des titulaires de doctorat comparables au plan international. Un groupe d'experts formés de représentants des agences statistiques nationales a été mis en place pour développer les composantes techniques du projet et initier la collecte de données au niveau national.

Ce document présente les trois principales composantes techniques du projet qui sont : 1) les directives méthodologiques ; 2) un questionnaire modèle et manuel d'instruction ; et 3) des tableaux d'indicateurs de sortie utilisés pour recueillir les données au niveau international. Le document dans sa présente forme a été discuté par le Groupe de travail des experts nationaux sur les indicateurs de science et de technologie (GENIST) en juin 2007 et approuvé pour une diffusion plus large. Il est prévu d'en préparer une version améliorée sur la base de l'expérience acquise au cours de la collecte de données lancée en novembre 2007.

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Background

On 29-30 January 2004, the OECD Committee for Scientific and Technological Policy (CSTP) met at Ministerial level and the OECD was urged to launch new work in the area of human resources in science and technology (HRST), notably "*Improving data on the development and mobility of human resources in science and technology: Using existing data sources and developing new statistical approaches, especially on mobility; Collecting and exchanging information on the career paths of holders of doctorates."*

This activity would be part of a series of others conducted under the aegis of CSTP and look more broadly at the different patterns affecting HRST in an increasingly competitive and globalised economy. Human resources are indeed recognised as being key to the creation, commercialisation and diffusion of innovations. In addition to the statistical work, the OECD has therefore organised a series of workshops on the supply and demand of HRST, the place and role of women in the scientific workforce, the attractiveness of research careers and the international mobility of researchers.[1]

Doctorate holders are not only the most qualified in terms of educational attainment, but also those who are trained to undertake research careers. However, no internationally comparable indicators to track their demand, supply and mobility in the the labour market were available. This is why the CDH activity started with a workshop aimed at identifying user needs for indicators in this area. These are summarised in the table below.

1. See the following documents: Changing Supply and Demand for S&T Professionals in a Globalised Economy, OECD, 2006; Women in scientific careers: unleashing the potential, Workshop proceedings, OECD, 2006; Summary Report of the Joint OECD-Spanish Ministry of Education and Science Workshop on Research Careers for the 21st Century (26-27 April 2006) [Secretariat working document DSTI/STP/SFRI(2007)5]; Summary report of the the SFRI Workshop on "Women in Science, Engineering and Technology (SET): Strategies for a Global Workforce" [Secretariat working document DSTI/STP(2007)9].

Linking policy and research questions to data needs

Policy and research questions	Examples of data needs
Role in innovation, knowledge economy What role do doctorate holders play in the innovation process as compared to other tertiary graduates, what is their productivity?	Doctorate holders by type of employment (research, non-research), sector (industry, government, higher education), field of research; data on scientific productivity of doctorate holders (publications, co-authorship, patents, citations).
Labour market supply and demand Do we train too many or too few doctoral graduates? Are there mismatches on the labour market? Why do doctorate holders choose a research career in the public sector or one in the private sector or leave research?	Employment status broken down by age, gender, country of origin, sector of employment, occupation, field of study vs. field of research. Statistics on wages, type of contract, unemployment rates, job conditions in S&T occupations; data on perceptions of career opportunities in S&T in public versus private sector, satisfaction.
Education to work	Time of transition to employment and post doctoral experience statistics.
Mobility How mobile are doctorate holders (among sectors and across countries)?	Mobility of doctorate holders between sectors (industry, government, higher education). Mobility of doctorate holders across countries: doctorate holders by country of birth, citizenship, residency status, type of visa. Data on permanent vs. non permanent, length of stay, returns to country of origin.

Previous work by the OECD had explored the potential of graduate and/or doctorate surveys.[2] An inventory of existing sources had shown that several surveys existed at national level and that they provided valuable information for the understanding of career patterns and mobility of doctorate holders and of researchers, who are recruited for a large part among doctorate holders. However, the surveys had been developed to serve national statistical needs and priorities and were not harmonised internationally. This limited the scope for international comparisons and failed to capture some important characteristics of this cadre of talents, such as their international experience or mobility.

With the organisation of the workshop on user needs in September 2004, the OECD launched a collaborative project aimed at developing internationally comparable indicators on the careers and mobility of doctorate holders building on existing national experiences. An important element of this work was to measure the mobility of doctorate holders both within a country and across borders – issues that were of main concern to policy makers around the world. The interest in cross-border movement underscored the need for surveys and indicators to be internationally comparable, and for the OECD to partner with other relevant international organisations, namely the UNESCO Institute for Statistics (UIS) and Eurostat (the Statistical Office of the European Community). The OECD/UIS/Eurostat CDH project was therefore launched.

2. A paper on *Entry of Doctorate Recipients into Working Life: Survey Systems of France, the United States and the United Kingdom – Points of Comparison* [Secretariat working document DSTI/EAS/STP/NESTI(2002)19] was prepared by a consultant for the Workshop on HRST organised in 2002. This work was followed by an inventory of doctorate recipients' surveys in OECD countries "*Availability and Characteristics of Surveys on the Destination of Doctorate Recipients in OECD Countries"* [Secretariat working document DSTI/DOC(2003)9].

An expert group was formed drawn from representatives of the national statistical bodies with competence in the area. This group, which currently represents 40 countries, was charged with developing the key elements and data collection methods for the project. It worked through a series of workshops in 2005-2006 and drew up a three-component package – methodological guidelines, a core model questionnaire and output indicator tables – which is presented in this working paper. A first data collection launched in September 2005 and results received for seven countries (Argentina, Australia, Canada, Germany, Portugal, Switzerland and the United States) helped provide input to the three components described above.[3] The current draft was discussed by the OECD Working Party of National Experts on Science and Technology Indicators (NESTI) in June 2007. NESTI approved the broader diffusion of the draft guidelines in the form of a working document. Its aim is to provide guidance to countries that wish to implement the CDH data collection in the near future.

More than 20 countries, of which many European (EU-27 Member States and EEA) having received financial support from Eurostat, are *de facto* currently working at implementing a CDH data compilation system at national level and the three responsible organisations will launch a new data collection by the end of 2007. New experiences with the model survey and comparative analysis of the data, as they become available, will continue to shape the CDH guidelines, a new version of which is expected for end 2008.

3. See http://www.oecd.org/dataoecd/17/57/38055153.pdf

STATISTICS ON THE CAREERS OF DOCTORATE HOLDERS (CDH)

METHODOLOGICAL GUIDELINES

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1. INTRODUCTION

Statistics on careers of doctorate holders (statistics on CDH) are compiled in order to measure the demographic, employment, international and intra-sectoral mobility, career and salary characteristics of doctorate holders at national and international level.

These statistics try to answer questions about the international mobility of highly skilled workers, as such frequently characterised under the headings of brain drain / brain gain / brain circulation. In addition, issues of qualitative and quantitative adequacy of the education of doctorates for the labour market are concerned as well as if the national labour markets prevail to be the primary frame for this highly skilled group. They also address questions of how well the skills of the highest educated are used by the society as well as the attractiveness of different career paths for doctorate holders. Questions like these often are asked on a worldwide level.

Based on an output-harmonised approach, the tabulated data to be delivered by countries to international organisations are compiled on the base of different methodological approaches. Often, already existing national surveys can be used that sometimes might need to be complemented or extended. These guidelines therefore provide the general framework for national data production.

They should on the one hand help countries to improve and align their national survey methodologies. On the other hand, countries that are newly introducing CDH surveys find orientation on how to do this at the national level.

2. PURPOSE OF STATISTICS ON CDH

2.1 Why doctorate holders?

Doctorate holders, being the highest educated group, are considered most likely to contribute to the advancement and diffusion of knowledge and technologies. As such, they often are seen as one of the key actors behind the creation of innovation and knowledge-based economic growth.

The CDH statistics will mainly focus on doctorate holders, but the same type of statistics could of course apply to other types of "highly qualified people". This might for example be the case in some developing countries where highly qualified non-doctorate holders might constitute a crucial part of the S&T workforce and thus a target group for policy issue.

2.2 Needs expressed by users

The user needs for statistics on CDH were thoroughly discussed during a series of workshops across 2003 and 2004.

One of the aims of these workshops was to define links between research questions and data needs, thus setting the objectives for the data collection of statistics on CDH. The policy questions observed at the national and international level are summarised under the following four headings:

- *The role of doctorate holders in innovation and the knowledge economy*

  Where do doctorate holders work as compared to other tertiary graduates? What is their productivity?

- *Labour market supply and demand*

  Do we train too many or too few doctorate holders? Are there mismatches in the labour market? Why do doctorate holders choose research career in the public sector, or in the private sector, or leave research?

- *Education to work*

  How long is the time of transition to employment? What are the implications of post-doctorate experiences?

- *Mobility*

  How mobile are doctorate holders between sectors? When do doctorate holders leave research for a career in management? How big are the flows of doctorate holders between countries?

With the CDH statistics, policy makers should get much better information to address these questions. Countries will be able to share information at international level, having their expatriates covered in the doctoral population observed by other countries.

2.3 The output harmonisation approach

As the national data compilation methods may be heterogeneous between countries, reflecting the diversity of the national statistical systems, a harmonisation effort is conducted on the output of the CDH statistics, together with a quality control.

The aim is therefore to obtain high quality results through a harmonised list of variables and indicators, together with their related definitions. The methodological guidelines additionally provide guidance on the target population, sampling frames, sampling design, survey instruments etc. that should be respected in the national survey methods.

2.4 Output indicators tables and national methodology description

The output indicators tables to be compiled by countries consist of about 30 predefined tables available as Excel spreadsheets. The current version of the tables is only to be compiled at national level. Breakdowns at the regional (sub-national) level might also be requested in the future and countries should consider this when developing their statistics on CDH. The tables are organised in seven broad groups, dealing with different aspects of doctorate holders. This set of tables is expected to evolve as the project develops.

- *Personal characteristics P1-P8*

  Break down the population of doctorate holders according to personal characteristics like age, gender, country of citizenship and country of birth.

- *Educational history ED1-ED5*

  Information on the educational history of the doctorate holders: the population of doctorate holders is broken down by country of doctorate award, country of prior education, field of doctorate degree and source of funding during completion of doctorate. The compilation of average and median age and number of years to completion of the doctoral degree is also part of the tables.

- *Employment characteristics EMP1-EMP8*

  Employment characteristics of doctorate holders such as employment status, job-to-job mobility, employment in research, institutional sector, median and average salaries.

- *Perceived situation in employment PERC1-PERC2*

  The doctorate holders' perception of work and satisfaction.

- *Inward mobility IMOB1-IMOB3*

  Classification of the population of doctorate holders according to the individuals' period of stay within the country, their previous country of residence and their reasons for moving into the country.

- *Outward mobility OMOB1-OMOB4*

  The population of doctorate holders should here be broken down according to their intention to move out of the country in the next year and their reasons for their intention to move out of the country. In addition, the number of doctorates having left the country and their country of destination could be specified.

- *Scientific output OUTP1- OUTP2.*

  The scientific output of doctorate holders during the last three years in terms of average number of articles, books, patents, start-up of a company, commercialisation of patents.

At the end of each separate table, some notes on data sources and applied definitions and classifications should be entered. In a separate document, *the national methodology description*, countries are asked to provide additional information on the statistical surveys and administrative data sources used. This metadata information is of vital importance to interpret the data in the tabulations.

3. THE TARGET POPULATION

3.1 Introduction

The target population is decisive for the CDH statistics. It determines finally the usefulness of the data delivered.

The survey frame and the statistics on the target population often are put together from different national sources and surveys, each with its own survey population.

Different countries are in different stages of development of the CDH statistics towards the final aim of full coverage of the target population. In a transitional phase, incomplete coverage will however have to be accepted which of course affects the comparability of the data between countries.

3.2 Definition of the target population

The total target population of the CDH statistics consists of all individuals with an education at ISCED 6 level. This global population of doctorate holders is divided into national populations, which are considered the target populations of national surveys in each country. The national target populations consist of individuals who at the reference date are fulfilling the following criteria:

- Having an education at ISCED 6 level (doctorates) obtained anywhere in the world, and
- Being resident (permanent or non-permanent) within the national borders of the surveying country.

With these definitions and the (theoretical) assumption that all countries are conducting the survey and using the same date of reference, the whole population of doctorate holders resident in those countries is covered without any overlaps.

In order to achieve full international comparability, the participating countries should cover the full target population even if transition periods might need to be accepted.

3.3 Reference date

The recommended reference date is December 1 of the year before the year when the survey is conducted at national level. In exceptional cases, the data compiling country is free to choose another reference date, but it should preferably be chosen as close to December 1 as possible, between 1 October and 31 December.

3.4 Reference periods

In the CDH output indicator template and in the CDH survey questionnaire some information sought should have a specified time period as a reference. This is:

- The last ten years (immigration).
- The last five years (immigration).
- The last three years (scientific output and career-related experience).
- The last two years (recent graduates).
- The last year (gross annual earnings).
- The next year (emigration plans).
- The next three years (career plans).

For the sake of international comparability, the country is recommended to choose reference periods that are equal to calendar years and that start or end as close to the reference date as possible. Please note that countries are not recommended to use a reference period when collecting information on employment status and occupation, but are instead encouraged to measure the actual situation on the single reference date.

3.5 Statistical units

The statistical unit is the single individual having a formal education at ISCED 6 level, (awarded doctorate) and being resident (permanent or non-permanent) in the reporting country on the reference date.

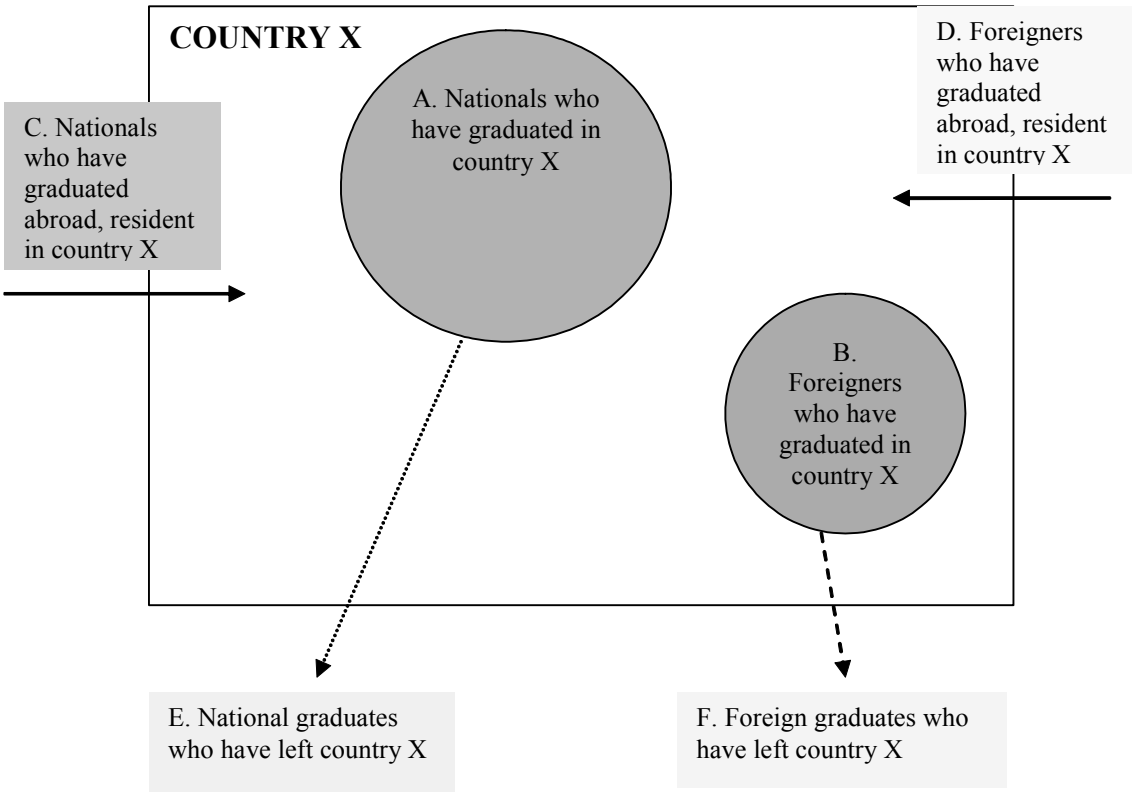
3.6 The age dimension

Countries should only include doctorate holders with an age below 70 years in the target population. Although many highly skilled people tend to work, and contribute to the society with skills and knowledge at higher ages, one of the main aims of the CDH statistics, *i.e.* the measuring of mobility and career path, is targeting relatively young doctorate holders. If countries want to study doctorate holders over 70, they should be sampled separately and also reported separately in the output tables.

3.7 Active and inactive doctorate holders

The national target population should include economically active doctorate holders as well as the economically inactive, as long as they are below the age limit.

3.8 Structure of the target population



The population of doctorate holders residing in the surveying country (country X) is structured in four broad groups namely:

Target population, residents in country X that are:

A. Citizens of country X and doctorate awarded within country X
B. Citizens of foreign countries and doctorate awarded in country X
C. Citizens of country X and doctorate awarded abroad
D. Citizens of foreign countries and doctorate awarded abroad

Two more groups of doctorate holders related to, but not belonging to the target population of country X, are defined as follows:

Non-target population, residents outside country X that are:

E. Citizens of country X and doctorate awarded within country X, who have left country X
F. Citizens of foreign countries and doctorate awarded in country X, who have left country X

In general, sub-populations E and F are taken into consideration in the reporting countries where these doctorate holders are resident. For this reason and because of the general difficulties to trace these doctorate holders cross-border, countries are not requested to report information on the doctorate holders resident outside the national borders.

3.9 Recent doctorate recipients

A sub-population of particular interest is the recent doctorate recipients. These are defined as the population of doctorate holders who were awarded doctorates from national institutions during the last two years. Indicators specifically related to this population are: age at graduation time to completion, source of funding and employment status.

4. SURVEY METHODOLOGY

4.1 Data collection at the national level

As countries face different conditions regarding their possibilities to identify and survey their population of doctorate holders, the national data compilation methods will be diverse.

Possible national data sources are surveys targeting university graduates, housing and population censuses, labour force surveys, migration statistics, etc. Gaps between the data available and the data requested need to be identified and filled successively. Existing surveys could be extended or new complementary surveys launched.

At a certain point, an inventory of the metadata on CDH statistics will be prepared in order to assess the quality of the tabulated data delivered.

4.2 Sampling frames for surveys on doctorate holders

In order to obtain the best possible coverage of the target population, countries might have to use several national sources to build their sampling frames since these sources are targeting different sub-groups of the population of doctorate holders.

Possible overlaps between sources should be identified and remedied. For this purpose, information that makes it possible to unambiguously identify the same individual in multiple sources like name, year of award and date of birth, could be used.

A list of possible sources for building sampling frames for CDH-related surveys is presented below. More sources might be identified as the project evolves (when more national metadata is available).

- *National registers of education*

  If a national register of education is available, this is probably the best possible sampling frame. The Swedish register of education, updated constantly with information on postgraduate exams from national universities and annually with information on the educational attainment of new immigrants, is an example of a source for a sampling frame that includes the entire target population.

- *National universities*

  University information systems provide sources for sampling frames that usually consist of high-quality administrative-based information on the educational characteristics of doctorate holders as well as on personal data, including addresses and phone contacts for the latest awarded doctorate holders. These types of sources are for example used as sampling frame in the Canadian *Survey of Earned Doctorates,* the Danish survey *PhDs in Natural Sciences* and the Italian survey *Employment of PhDs of the University of Rome*.

- *Previously conducted surveys on doctorate holders*

  Previously conducted surveys on awarded doctorate holders could also be seen as possible sources of sampling frames. The longitudinal panel *Survey of Doctorate Recipients* in the United States is, for example, based on a sample of the annually conducted *Survey of Earned Doctorates.*

- *International and national foundations*

  Doctorate holders who have received scholarships during their studies might be possible to identify and reach through the funding organisations. The Portuguese Foundation for Science and Technology is used to build a sampling frame in the survey *PhDs in the labour market.*

- *National libraries*

  National libraries might be able to provide a list of thesis of doctorates awarded within the country together with information like name, university, field of science, and year of award. In order to use this list for the building up of the sampling frame, it probably needs to be complemented with contact information from other sources.

- *Alumni organisations*

  Since membership is not compulsory, alumni organisations will often not be able to provide a complete list of all doctorate holders. Name and address registers could however be expected to hold recently updated information making it suitable for tracing of individual doctorates holders. Alumni databases were used as a sampling frame in the German *Brain Drain – Brain Gain Survey on International Job Careers*.

- *The population and housing censuses*

  One broad source for building up a sampling frame is the housing and population census. This survey in principle covers the complete target population, but some limitations can be expected: *e.g.* the low frequency of these surveys and, more importantly, the non-systematic separate identification of doctorate holders in some countries. *The Belgian CDH survey uses the population and housing census as a sampling frame.*

- *Central registers of foreigners*

  If registers of foreigners are available, they should be used for building up the sampling frame of CDH statistics, in particular with regard to doctorate holders with foreign citizenship. In combination with population and housing censuses, registers of foreigners could provide the link to population changes among foreign citizens (including doctorate holders) which occurred since the reference date of the census.

- *R&D statistics*

  If R&D data collection is conducted, information on citizenship and formal qualifications might be available for doctorate holders who are employed in research positions. The OECD requests this information and so does the European Commission, where the concerned variables are included in the Commission regulation 753/2004 that applies for the EEA countries. For more details, see also Annex 1.

4.3 Survey types

Beside the extensive use of administrative sources (which is possible in some countries), different survey types could be considered when compiling information on educational history, mobility and careers of doctorate holders. Below they are categorised into three different main types: *graduate surveys, cohort surveys* and *cross-sectional retrospective surveys*.

These three survey types are ordered according to their degree of coverage of the target population but some specific advantages could also be identified in each type. The three surveys should thus not be seen as mutually excluding, but rather complementary. Countries could opt for one or for a combination of surveys that provides the most cost-efficient national data collection.

The sampling frames and their qualities are of course of crucial importance for the quality of the results. The complementary coverage of the different sampling frames used in the different survey types needs to correspond to the CDH target population. National examples and proposals[4] on the different types of surveys and how they could be combined[5] will be compiled and made available by the CDH project team.

4.3.1 Graduate surveys

Graduate surveys are surveys that capture information at the point of graduation. This type of survey is especially suitable for collecting information on the doctorate programme, the education history and conditions during the years of study. A graduate survey is also the appropriate means for obtaining information on post-graduation plans and could be the only point of contact with doctorate holders that plan to leave the country, including those that return to their country of origin.

A graduate survey should preferably be conducted regularly on all nationally awarded doctorate holders, including foreigners, as soon as possible after graduation. Information on educational history and the doctorate programme itself (*e.g.* source of funding and time to completion) is best obtained as soon after graduation as possible. Co-operation with the educational institutions should be sought to take advantage of their information systems and established contact with the respondents. If the educational institutions could obtain survey results pertaining to their own graduates, their motivation to participate should be high.

Records obtained through a graduate survey should be stored and used to build a register of nationally awarded doctorate holders. Besides being a useful source of information, such a register could in the future also be used to construct sampling frames for cohort and cross-sectional surveys.

4.3.2 Cohort surveys

Cohort surveys with a longitudinal approach have advantages in collecting up-to-date information about the training and working activities undertaken by doctorate holders, by following a homogeneous population over time. For instance, it can be assumed that individuals who graduated in the same year will experience similar conditions in the labour market when job searching. Such longitudinal surveys should be ideally carried out every two to three years.

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4. Currently available on the Eurostat CIRCA site and the OECD NESTI-NET: Proposal for cohort survey (Avveduto, Perani, Ungaro, 2005), Notes on cohort and graduate surveys (Bordt 2006).

5. The U.S. Experience (Burelli, 2005).

However, cohort surveys on recently awarded doctorate holders can provide only limited information about long-term career developments and international mobility, which can be better investigated through a cross-sectional retrospective survey.

A cohort survey could be conducted as a sample survey or a census. It should in principle include doctorates awarded from all national institutions, including foreigners, and should be based on a sampling frame where year of graduation is available.

If new cohorts are regularly introduced and surveyed in parallel to older ones the coverage with regard to the CDH target population will increase in the course of time.

4.3.3 Cross-sectional retrospective surveys

A cross-sectional survey should cover doctorate holders from many different cohorts, awarded within the country and abroad. Through retrospective questions, the cross-sectional survey should provide a good picture of the career paths of doctorate holders at different stages of their career. The cross-sectional survey is thus the most appropriate tool if information on the entire target population is to be obtained through one single survey.

Cross-sectional surveys have the advantage of also including in their target population the important populations of doctorate holders awarded abroad, normally not included in *graduate surveys* and *cohort surveys*. As information on this particular group is considered most important for the CDH project countries should make strong efforts to assure the full coverage of this group.

4.4 Stratification

Cohort surveys and *graduate surveys* should, if they are carried out as sample surveys, be stratified according to at least two main criteria, graduating institution and field of science.

For *cross-sectional sample surveys*, stratification is needed with regard to the structure of the target population and the possible use of multiple sources to build the sampling frames.

In statistical surveys, the number of domains needed often determines the number of strata. However, for multipurpose statistics like the CDH statistics, the number of domains will often exceed the desirable number of strata. Since a too high number of strata could lead to a problem with too few observations in some strata, it is important to keep stratification at a reasonable level.

The most obvious and significant stratification is to break down the population according to the sampling frames applied. As strata should be as homogenous as possible with respect to the principal variables analysed, further recommended breakdowns are according to the characteristics year of graduation, fields of science, and gender.

4.5 Allocation and sampling

The allocation of the sample on the strata may in principle be **proportional** with regard to the stratum size. If the allocation ends up giving too small a sample size in some strata, then over sampling may be considered for these strata. Over-sampling might also be considered in strata where high levels of non-response could be expected.

Total sample size should be chosen taking into account the detailed breakdowns in the output indicators template. The selection of the sample should be based on random sampling techniques, with known and equal selection probabilities being applied for each stratum. The random sampling techniques should be without replacement within each stratum.

5. COLLECTION AND PROCESSING OF DATA

5.1 Data collection methods

When collecting CDH statistics, a mixed-mode data collection adapted to the possibilities available within each sampling frame and to each individual's willingness to respond could be considered the most successful alternative. This approach, applied by most countries conducting surveys on doctorate holders, includes the use of existing data, postal and Internet surveys, telephone interviews and personal interviews.

Postal surveys are most commonly used and have the advantage of being relatively inexpensive. Under some circumstances, the delivery agent may also bring back information on the new addresses of people who moved during the most recent past. Both postal and telephone reminders may be used to increase the response rate.

Computer assisted telephone interviews (CATI) and personal interviews (CAPI) are techniques where interviewers play an active role in collecting information from respondents. Although quite costly they could be justified by the high rates of response that they normally achieve. CATI and CAPI techniques are especially useful in boosting the response rates of a postal survey.

Many national practices exist where countries give the respondent the opportunity to fill in the questionnaire electronically on the Internet. The use of questionnaires that can be accessed on-line by the Internet is recommended as an alternative to other means of collection after the contact with the respondent has been established.

In the special case of *graduate surveys,* the graduating institutions should preferably be involved in the data collection. The institutions could considerably facilitate the data collection process by distributing and collecting the questionnaire together with their administrative requirements for graduations.

5.2 The CDH model questionnaire

Since the CDH statistics are based on an output-harmonised approach, countries could decide what survey instruments to use. However, a full model questionnaire is now available in English, with questions adapted to the output indicator templates and definitions.

The questionnaire is divided into seven different modules dealing with different aspects of the careers of doctorate holders: *doctoral education* (EDU), *recent graduates* (REC), *postdocs* (POS), *employment situation* (EMP), *international mobility* (MOB), *career related experience and scientific productivity* (CAR), *personal characteristics* (PER). In order to facilitate the task for the respondents, an instruction manual has been developed.

The model questionnaire should be used by countries that are going to launch a self-standing CDH survey for the first time. In addition, countries that want to revise their existing national questionnaires are encouraged to align them by using the selection of questions presented in the model questionnaire. The first section of the core model questionnaire presents *instructions for adaptation of the model questionnaire to national needs*, pointing out necessary adaptations as well as options for the drafting of

some questions. These instructions should be carefully followed when applying the core model questionnaire at country level.[6]

5.3 Coding of data values

The definitions and the breakdowns which are part of the CDH output tabulation finally determine what classifications and nomenclatures are to be used. Complementary to the tabulation programme a listing of the requested variable definitions is made available in the document *Output indicators variables and definitions*.

5.4 Data editing

Throughout the data processing cycle, there should be a systematic and sustained follow up with the respondents to make sure that the data provided is of good quality. Data quality checks have to be made both at micro- and macro-level, before the data are finally processed and disseminated.

6. The model questionnaire is available on the CIRCA site of Eurostat and the OECD NESTI-NET.

6. ESTIMATION OF RESULTS AND DATA QUALITY

6.1 Response rates

Doctorate holders who do not respond to the CDH survey questionnaire may not only differ from respondents in the characteristics measured, but non-response does generally not occur completely at random. Therefore, all efforts have to be made to minimise unit non-response. Nevertheless, survey budgets and potential non-response bias may influence the decisions made about the acceptable degree of non-response and its treatment.

6.2 Unit non-response and non-response survey

A non-response survey is recommended if the non-response rate, as an un-weighted percentage of all sampled doctorate holders, exceed a certain limit (*e.g.* 30%). The aim of a non-response survey is to know more about the groups of non-respondents. If the results from the non-response analysis indicate that there is a difference between respondents and non-respondents indicators, this information should be used when calculating the weighting factors.

6.3 Imputation

Item non-response should be kept at a minimum. Imputation should be the last option after every attempt is made to get the needed information from other data sources *i.e.* census data, administrative or register data or from the respondent.

Item non-response imputations are recommended only in this case. Imputed values need to be flagged as this is for the non-response analysis to be done. The imputation methods to be used for handling missing values should be specified in the national methodology description.

6.4 Weighting and calibration

In order to produce estimates for the surveyed population as a whole, the data collected from a sample survey has to be weighted. Even if the survey is a census survey, with total enumeration of the frame population, weighting is appropriate to compensate for non-response or over coverage.

The simplest weighting technique is to use the inverse of the sampling fractions of the sampling units, the inclusion probability, corrected for non-response. If a stratified sampling technique with different sampling fractions is used, weights have to be calculated individually for each stratum. If appropriate auxiliary information is available, it is recommended that estimates are built on models or calibration for better precision and reduced bias.

6.5 Over-coverage

The size of over-coverage could be difficult to estimate, but if the over-coverage can be identified among the respondents, this can give some implications. If a non-negligible amount of over-coverage is present in the surveyed sample, the estimation weights have to be adjusted for this in order to reduce bias in the estimates.

6.6 Under-coverage

With the aid of suitable auxiliary information and calibration techniques, adequate estimators are obtained even when under-coverage is present in a survey. As it is difficult to recommend the use of certain auxiliary information, surveying countries will have to find their own auxiliary information to use. Another approach, less advanced but maybe more practical, could be not to try to correct for under-coverage in the estimates, but to discuss its occurrence and implication in the national methodology description.

7. DATA TRANSMISSION

7.1 Data to be transmitted

The aggregated (tabulated) statistics to be delivered to the international organisations are determined in close co-operation with the *expert group on careers of doctorate holders*. The output tabulation comprises all variables that are to be compiled at national level, together with the necessary definitions. It also includes the necessary breakdowns for the variables in question.

Aggregated statistics have to be treated in accordance with the standard confidentiality rules at national level, before transmission to the international organisations. Confidential tabulated data may however also be transmitted for EU countries to Eurostat in accordance with Community legislation.[7]

In addition to the tabulated aggregated statistics, national metadata are also requested to be sent to the international organisations. This metadata should cover *e.g.* type of sources used, national deviations from definitions or other key quality indicators such as non-response rates, coefficient of variation, etc. A specific structure to be used in the metadata compilation will be distributed together with the indicator templates and will also be available on the CIRCA site of Eurostat and on the OECD NESTI-NET.

7.2 Transmission tools

The CDH statistics are to be transmitted as Excel file provided by the international organisations to the countries concerned. At a certain stage, consistency checks will also be inserted in the Excel questionnaire, which should increase the quality of the aggregated data sent.

The special metadata structure for CDH statistics should be used when reporting on survey methodology and data quality issues to the three organisations.

7.3 Deadlines

As mostly the national data compilation takes place in the first three quarters after the reference date, countries are asked to return the CDH Excel questionnaires containing the output tabulation 12 months after the end of the reference period. This means that, for instance, data with the reference date 1 December 2006 should be submitted to the international organisations at the latest by 1 December 2007.

However, in accepting a two years frequency of the data collection and data compilation (with even reference years 2006, 2008, 2010, etc.), international organisations will collect the data annually in order to receive the data of the countries that opt for an annual data compilation frequency at national level.

7. Council Regulation 1588/1990 on the transmission of data subject to statistical confidentiality to the Statistical Office of the European Communities.

IN ADDITION:

For more detailed information on the methodology of CDH statistics, please also consult the CIRCA site of Eurostat and the OECD NESTI-NET, where useful background documents will be loaded on a regular basis.

ANNEX 1: POSSIBLE DATA SOURCES FOR BUILDING SAMPLING FRAMES

Institution	*Available information*	*Remarks*
National library	• Author • Title of the thesis • Type (dissertation or habilitation) • University • Field of degree • Year of graduation	Addresses are generally not available.
Population census	• Employment status • Occupation • Educational attainment (the possibility to identify doctorate holders has to be assessed) • Civil status • Sex • Date of birth • Citizenship • Country of birth	Could provide a good base for identifying doctorate holders resident within a specific country at the time of the census. There is of course a problem with timeliness since the Censuses are in many instances only conducted every 10th year. Therefore it is recommended that the information is updated from other data sources to capture recent changes in the target population.
Universities	• Name • Year of graduation • Field of education	Could provide a list of awarded doctorate holders that have completed the doctorate on their premises.

Institution	*Available information*	*Remarks*
Universities and research institutes	Might provide a list of doctorate holders employed.	Addresses should be available.
Information-system of higher education (Switzerland, France, Italy?)	• Sex • Year of graduation • Field of degree • University • Length of the doctoral training • Country citizenship • Country of birth • Year of birth	It has to be checked if addresses are available. Data protection could be a problem.
Educational registers	• Age • Sex • Country of birth • Highest education • Completion year	Educational registers are in some countries held by statistical agencies as a complement to population registers. Addresses could be obtained through a match with the population registers.
Central register of foreigners in a given country	Could contain demographic variables and geographical information about foreigners living in the surveying country.	Addresses could also be available. Probably no information on the formal educational level.
Unemployment register	Possible data source for unemployed doctorate holders. Which information is available has to be checked.	It has to be checked if addresses are available.
Professional organisation	Which information is available has to be checked.	Could be helpful to identify the addresses of the units in the survey frame. But is hardly suitable for defining the survey frame since not all doctorate holders are members of such an organisation.
ALUMNI	Know the addresses of former students.	The data available from such sources may not be complete as membership is voluntary. Not every university disposes of records of former students.

STATISTICS ON THE CAREERS OF DOCTORATE HOLDERS (CDH)

CORE MODEL QUESTIONNAIRE

INSTRUCTIONS FOR ADAPTATION OF THE MODEL QUESTIONNAIRE TO NATIONAL NEEDS

The present questionnaire has been drafted in accordance with the definitions and methodological guidelines prepared in the framework of the CDH project. Please consult the accompanying manual comprising the definitions and other guidelines which should be followed in order to facilitate international comparison of the statistics provided by different countries.

This questionnaire consists of seven modules which concern education of doctorates (module EDU), their employment history (module EMP), career related experience and scientific output (module CAR), personal characteristics (module PER), recent graduates (module REC), POSTDOCS (module POS) and mobility (module MOB). The present document proposes the following sequence for the modules: EDU-REC-POS-EMP-MOB-CAR-PER. However, countries are encouraged to organise the questionnaire according to their own needs and national policies priorities.

Remarks applicable to all modules:

Questions marked with (*) are essential to cover information for filling out the CDH output tables. When organising your national questionnaire, please make sure that ALL these questions are included. You are free to incorporate extra questions in order to reflect your national requirements.

Please pay particular attention to adapting ALL filter questions (accompanied by SKIP or GO TO) with the actual order of modules chosen, even if the proposed order is adopted. <NEXT MODULE> should be substituted by the denomination of the next module in your national questionnaire design.

Many questions require respondents to refer to a table provided in the instruction manual to identify the corresponding classification code. As there are several tables of classification codes provided in the manual, it is possible that respondents could use the wrong table and enter the wrong code in their survey. The accuracy and ease with which these questions are completed may be improved by including the relevant classification table within the question itself, particularly if the questionnaires will be administered electronically. If this isn't possible, the table should be referred to by its exact and complete title given in the Instruction Manual provided to the respondents (*e.g.* Classification 1: Field of Science and Technology). These questions could also ask for plain text instead of codes. Countries are free to adapt these in both ways.

Please note that ALL elements in brackets <> should be replaced accordingly.

In <200X>, <200X-1>, <200X-2>, <200X-9>, 200X should be substituted by the year of the survey, 200X-1 with the previous year, and so on.

<The country X> should be replaced by the name of your country.

Section "SCOPE AND PURPOSE":

This section should be complemented with some information on the particular objectives of the survey in the country.

The phrase <Your response is voluntary and failure to provide some or all the requested information will not in any way adversely affect you.> should only be included in those countries were response is voluntary. A note stating the mandatory character of the survey should be included instead, if appropriate.

<20 minutes> is the estimated time to complete the questionnaire if no other questions are added. However, countries are encouraged to estimate the time needed in each case, and give the right value in this section.

Module EDU:

In question EDU.3 <doctoral work/ thesis/dissertation> should be adapted to the national context according to the national education system in your country. The items given in this question could also be adapted to the national context if considered unclear in its current version.

In question EDU.4 <Industrial interface/working with industry> should be replaced by the type of relations between academia and industry prevalent in your country.

Items in question EDU.8 should be adapted to the institutional structures funding doctoral studies in the country, while ensuring correspondence with the classification presented, also used in the output tabulations ED5, EMP3 and EMP7. The following classification is more detailed than the one proposed and could also be applied if appropriate:

A.	1.	Fellowship, scholarship from your institution
	2.	Fellowship, scholarship from government
	3.	Fellowship, scholarship from business
	4.	Fellowship, scholarship from a private non-profit organisation (PNP)
B.	5.	Fellowship, scholarship from abroad
C.	6.	Teaching assistantship
	7.	Research assistantship
	8.	Teaching and research assistantship
D.	9.	Other occupation (full time)
	10.	Other occupation (part time)
E.	11.	Employer reimbursement/ assistance
F.	12.	Loan
	13.	Personal savings
	14.	Spouse's, partner's or family support
	15.	Spouse's, partner's or family support from abroad
G.	16.	Other
H.	17.	Unknown

Module REC:

Question REC.2 should be adapted to the national education system in your country. The name and the state or province of the education provider can be removed if not relevant to your country. <College or equivalent> <if applicable> should be replaced by the name of the postsecondary and pre-university level in your country, if applicable, or simply dropped, if not existent or irrelevant.

Question REC.3 could be rephrased as "Provide the date on which you accepted your first CAREER PATH JOB (month and year) **(*if applicable*)**".

Module EMP:

In question EMP.3 <gross annual earnings> should be replaced by the term relevant to your country.

Question EMP.4 and EMP.10 could be adapted to the national context. The name of the employer, and the state or province could be removed if considered not relevant.

In question EMP.4, “Occupation” could alternatively be replaced by the following. If this option was chosen, the Manual should include “Classification <N>: Occupations ISCO-88” as below. With the current version, coding of ISCO occupations will have to be carried out by the national project team.

Using the OCCUPATIONS LIST (*see Manual: Classification 3: Occupations ISCO-88*), choose the code that BEST describes the work at this position.

CODE ☐☐☐

Classification 3: Occupations ISCO-88

code	ISCO-88 title
100	**LEGISLATORS, SENIOR OFFICIALS AND MANAGERS**
200	**PROFESSIONALS**
21	Physical, mathematical and engineering science professionals
211	**Physicists, chemists and related professionals**
212	**Mathematicians, statisticians and related professionals**
213	**Computing professionals**
214	**Architects, engineers and related professionals**
22	Life science and health professionals
221	**Life science professionals**
222	**Health professionals (except nursing)**
223	**Nursing and midwifery professionals**
230	**Teaching professionals**
231	**College, university and higher education teaching professionals**
232	**Secondary education teaching professionals**
233	**Primary and primary education teaching professionals**
234	**Special education teaching professionals**
235	**Other teaching professionals**
24	Other professionals
241	**Business professionals**
242	**Legal professionals**
243	**Archivists, librarians and related information professionals**
244	**Social science and related professionals**
245	**Writers and creative or performing artists**
300	**Technicians and associate professionals**
400	**Clerks**
500	**Service workers and shop and market sales workers**
600	**Skilled agricultural and fishery workers**
700	**Craft and related trades workers**
800	**Plant and machine operators and assemblers**
900	**Elementary occupations**
000	**Armed forces**

Source: *International Standard Classification of Occupations (ISCO-88).*

Questions EMP.5 and EMP.6 should be adapted to the national context according to the national education system in your country.

In questions EMP.11 and EMP.12, <the four preceding weeks>, could be replaced by the appropriate period in the national legal context.

Module MOB:

In questions MOB.2, MOB.3 and MOB.8, a more detailed classification can also be applied if appropriate:

1 = A:	1. Completion of doctorate	1 ☐	2 ☐	
2 & 3 = B:	2. End of POSTDOC	1 ☐	2 ☐	
	3. End of job contract	1 ☐	2 ☐	
4 to 9 = C:	4. Sent abroad by employer	1 ☐	2 ☐	
	5. POSTDOC offer	1 ☐	2 ☐	
	6. Job offer	1 ☐	2 ☐	
	7. Better paid job	1 ☐	2 ☐	
	8. Job search	1 ☐	2 ☐	
	9. Guarantee or ease to find a job	1 ☐	2 ☐	
10 to 14 = D:	10. Bigger access to publishing	1 ☐	2 ☐	
	11. Development or continuity of thesis work	1 ☐	2 ☐	
	12. Work in a specific area not existent inside <THE COUNTRY X> or: Work in a specific area not existent inside the country of your previous residence	1 ☐	2 ☐	(MOB.2 & .8) (MOB.3)
	13. Possibility of creation of own research team	1 ☐	2 ☐	
	14. Possibility to create a new research area	1 ☐	2 ☐	
15 to 19 = E:	15. Family or personal reasons	1 ☐	2 ☐	
	16. Refugee	1 ☐	2 ☐	
	17. Economic reason	1 ☐	2 ☐	
	18. Political reason	1 ☐	2 ☐	
	19. End of residence permit / visa	1 ☐	2 ☐	
20 = F:	20. Other-Specify	1 ☐	2 ☐	

Module CAR:

In question CAR.5 <three years> should be replaced by the number of years appropriate to your national needs.

Module PER:

The date format in question PER.2 should be adapted to the national standard.

Questions PER.4 and PER.6 could be adapted to national standards, since categories may vary. <marriage-like relationship> should be replaced by the expression commonly used in the national context.

Instruction Manual:

The Instruction Manual also contains some sections that need to be adapted to national survey context. For example, <Introduction of institution carrying out the survey> is a place keeper for some information on the national institution carrying out the CDH survey.

For any queries relating to the adaptation of this questionnaire, do not hesitate to contact the UNESCO Institute for Statistics by e-mail: **stsurvey@uis.unesco.org** or by fax: (**1 514) 343-6872**

SCOPE AND PURPOSE

The international Survey on Careers of Doctorate Holders (CDH) is a joint project carried out by the UNESCO Institute for Statistics (UIS), the Organisation for Economic Co-operation and Development (OECD) and the Statistical Office of the European Commission (Eurostat).

The present questionnaire is designed to collect the most recent statistics on educational history, work experience and international mobility of doctorate holders. The main objectives of the questionnaire are:

- To collect internationally comparable statistics on careers of doctorate holders;
- To establish and analyse trends on careers paths and mobility of highly qualified people throughout the world.

The improvement and harmonisation of data collection in a broad number of countries and its further analysis should enable policy makers, researchers and practitioners to start the appropriate policies with regard to highly qualified people in order to ensure their career development all over the world.

Any information publicly released (such as statistical summaries) will be in a form that does not personally identify you.

<Your response is voluntary and failure to provide some or all of the requested information will not in any way adversely affect you.>

Actual time to complete the questionnaire may vary depending on your circumstances. On average, it will take about <20 minutes> to complete the questionnaire.

Your assistance is essential to ensure that the results are meaningful. Your answers will be kept strictly confidential and used for statistical purposes only.

Thank you for taking the time to complete this questionnaire. Directions for filling it out are provided in the accompanying manual. Because not all questions will apply to everyone, you may be asked to skip certain questions.

- Please use an "X" when answering questions that require marking a box.
- In order to get comparable data, we will be asking you to refer to 1 December <200X>.
- Follow all "SKIP" and "GO TO" instructions after marking a box.
- Either a pen or pencil may be used
- If you need to change an answer, please make sure that your old answer is either completely erased or clearly crossed out.

Thanks again for your help; we really appreciate it.

Module EDU – Doctoral education

The term "doctoral" is understood in this survey as pertaining to a doctorate/ISCED 6 degree.
See Manual: Definition 1: ISCED 6 (Doctorate)

*EDU.1 In which institution did you complete your doctoral programme?

Department (or interdisciplinary committee, centre, institute):	
University:	
City:	
State or province:	
Country:	

*EDU.2 Using the FIELD OF SCIENCE AND TECHNOLOGY list (*see Manual: Classification 1: Field of Science and Technology*), choose the code that corresponds to your doctoral degree.

FIELD CODE : ☐☐ . ☐

EDU.3 In which category would you place your <doctoral work/ thesis/dissertation>?

Mark (X) all that apply

1 ☐ Addressed a fundamental problem
2 ☐ Made an improvement in a process
3 ☐ Made an improvement in methodology
4 ☐ Other-*Specify* ↘

_____

EDU.4 Did your doctorate involve...?

Mark (X) all that apply

1 ☐ Course work
2 ☐ Field work
3 ☐ Laboratory work
4 ☐ <Industrial interface/working with industry>
5 ☐ Other-*Specify* ↘

_____

*EDU.5 When did you start your doctoral programme?

MONTH ☐☐ (mm) YEAR ☐☐☐☐ (yyyy)

*EDU.6 When was your doctorate granted?

MONTH ☐☐ (mm) YEAR ☐☐☐☐ (yyyy)

EDU.7 Please estimate the time taken off for any purpose other than preparing the doctorate, in the period between the dates you started your doctoral programme and your doctorate was granted.

MONTHS ☐ (Round to whole months)

EDU.8 In what country did you receive your previous university degree (ISCED 5 Level, such as <Bachelor, Diploma, Master>) (see Manual: Definition 2: ISCED 5: FIRST STAGE OF TERTIARY EDUCATION***)?**

Country _____

***EDU.9 Which of the following were financial sources during your doctoral studies?**

Mark (X) which was your primary source of support (only one) and secondary source of support (only one)

		Primary source of support	Secondary source of support
1.	Fellowship or scholarship from an institution in <THE COUNTRY X>	1 ☐	2 ☐
2.	Fellowship, scholarship from abroad	1 ☐	2 ☐
3.	Teaching and/or research assistantship	1 ☐	2 ☐
4.	Other occupation	1 ☐	2 ☐
5.	Employer reimbursement or assistance	1 ☐	2 ☐
6.	Loan, personal savings, support from spouse, partner or family	1 ☐	2 ☐
7.	Other	1 ☐	2 ☐
8.	Unknown	1 ☐	2 ☐

Module REC - Recent graduates

A recent graduate is a person who received her/his doctorate degree at any time between January <200X-1> and December <200X>. *See Manual: Definition 3: Recent graduates.*

REC.1 Did you receive your doctoral degree at any time between January <200X-1> and December <200X>?

1 ☐ Yes 1 ☐ No → ***SKIP THE REST OF THIS MODULE AND GO TO <NEXT MODULE>***

REC.2 (IF YES**) List chronologically all educational institutions you have attended since secondary school.**

Secondary school

Name	**State or province**	**Country**
1.		
2.		

<College or equivalent> <*if applicable***>**

Name	**State or province**	**Country**
1.		
2.		

First university degree

University name	**Years Attended**		**State or province**	**Country**	**Field of study** *(see Manual: Classification 2: Field of study)*
	From	**To**			
1.					
2.					

Master's degree or equivalent

University name	**Years Attended**		**State or province**	**Country**	**Field of study** *(see Manual: Classification 2: Field of study)*
	From	**To**			
1.					
2.					

If you have attended more institutions, please add an extra page.

REC.3 How many months elapsed between the time you <u>completed</u> your doctorate degree and the time you accepted your first CAREER PATH JOB (*if applicable*)**?**

A "career path" job is a job that will help further your career plans or is a job in a field where you want to make your career. See Manual: Definition 4: Career path job

NUMBER OF MONTHS ☐

☐ Have not accepted my first career path job

☐ Accepted career path job either before or during my doctorate

Module POS - POSTDOCS

POS.1 Would the principal job you held on 1 December <200X> be considered a POSTDOC position in <THE COUNTRY X>?

1 ☐ Yes 2 ☐ No → ***SKIP THE REST OF THIS MODULE AND GO TO <NEXT MODULE>***

POS.2 (IF YES**) What is the title of your POSTDOC position?**

Title: ☐

POS.3 Using the FIELD OF SCIENCE AND TECHNOLOGY list (*see Manual: Classification 1: Field of Science and Technology***), choose the code that better corresponds to the activities in your POSTDOC position.**

FIELD CODE: ☐ . ☐

POS.4 What is the total length of your POSTDOC position/contract?

☐ months

POS.5 Is it possible to extend your POSTDOC position? If yes, for how long?

1 ☐ Yes, → another ☐ months 2 ☐ No

POS.6 What were your reasons for taking this POSTDOC?

Mark (X) Yes or No for each item	*Yes*	*No*
1. Additional training in doctorate field	1 ☐	2 ☐
2. Training in an area outside of doctorate field	1 ☐	2 ☐
3. Carry out research independently	1 ☐	2 ☐
4. Work with a specific person or in a specific place	1 ☐	2 ☐
5. Carry out and support teaching activities	1 ☐	2 ☐
6. Other employment not available	1 ☐	2 ☐
7. Post-doc generally expected for career in this field	1 ☐	2 ☐
8. Other-*Specify* → _____	1 ☐	2 ☐

POS.7 What percentage of your time in your POSTDOC position was dedicated to:

1. Research activities ☐ %
2. Teaching activities ☐ %
3. Other activities (such as administrative tasks) ☐ %

POS.8 What was the main source of financial support for this POSTDOC?

Mark (X) ONLY one

1 ☐ Government /Public sector agency
2 ☐ Industry/Business
3 ☐ College or university
4 ☐ Private foundation
5 ☐ Non-profit, other than private foundation
6 ☐ Other-*Specify* _____

GO TO <NEXT MODULE>

Module EMP - Employment situation

CURRENT EMPLOYMENT STATUS

***EMP.1 What was your employment status on 1 December <200X>?**

1 ☐ Employed: Paid employment *(See Manual: Definition 5: Employed)*

2 ☐ Unemployed → ***SKIP TO EMP.10*** *(See Manual: Definition 6: Unemployed)*

3 ☐ Employed: Self-employed *(See Manual: Definition 5: Employed)*

4 ☐ Inactive → ***SKIP TO EMP.10*** *(See Manual: Definition 7: Inactive)*

EMP.2 Counting ALL jobs held on 1 December <200X>, how many hours did you usually work during a typical week, including part-time, evening, weekend work?

NUMBER OF HOURS PER WEEK ☐

***EMP.3 Counting ALL jobs held, what were your <GROSS ANNUAL EARNINGS>** (i.e. before deductions, *see Manual: Definition 11: Gross annual earnings*) **for the year <200X>?**

☐

***EMP.4 Please provide the details on all jobs you held on 1 December <200X>**

Present position 1 (PRINCIPAL job)			
Employed since	☐ *yyyy (year)*		
Name of employer	☐		
Location	*City* ☐ *State/Province* ☐ *Country* ☐		
Sector of employment *Mark (X) ONLY one (See Manual: Definition 10: Sector of employment)*	☐ Business enterprise sector ☐ Governmental sector ☐ Higher education sector ☐ Other education sector ☐ Private non-profit sector (including self-employed)		
Occupation	*Please be as specific as possible, including any area of specialization:* ☐		
Does this job include teaching activities?	☐ *No* ☐ *Yes, less than 25%* ☐ *Yes, 25%-49%* ☐ *Yes, 50%-74%* ☐ *Yes, 75%-100%*		
Type of position	*Mark (X) ONLY one (see Manual: Definition 8: Temporary/permanent employment)* ☐ Permanent ☐ Temporary	*Mark (X) ONLY one (see Manual: Definition 9: Full-time/part-time employment)* ☐ Full-time ☐ Part-time	*Mark (X) ONLY one* ☐ POSTDOC ☐ non-POSTDOC

Present position 2 (SECOND job)			
Employed since	☐ *yyyy (year)*		
Name of employer			
Location	*City* ☐ *State/Province* ☐ *Country* ☐		
Sector of employment Mark (X) ONLY one (See Manual: Definition 10: Sector of employment)	☐ Business enterprise sector ☐ Governmental sector ☐ Higher education sector ☐ Other education sector ☐ Private non-profit sector (including self-employed)		
Occupation	*Please be as specific as possible, including any area of specialization:*		
Does this job include teaching activities?	☐ *No* ☐ *Yes, less than 25%* ☐ *Yes, 25%-49%* ☐ *Yes, 50%-74%* ☐ *Yes, 75%-100%*		
Type of position	*Mark (X) ONLY one (see Manual: Definition 8: Temporary/permanent employment)* ☐ Permanent ☐ Temporary	*Mark (X) ONLY one (see Manual: Definition 9: Full-time/part-time employment)* ☐ Full-time ☐ Part-time	*Mark (X) ONLY one* ☐ POSTDOC ☐ non-POSTDOC

If you have more jobs, please continue this list in a separate page.

PRINCIPAL JOB

The next set of questions (EMP.5 – EMP.9) asks you about the PRINCIPAL JOB you held on 1 December <200X>

EMP.5 What was the MINIMUM education level required for the PRINCIPAL JOB you held on 1 December <200X>?

Mark (X) ONLY one

1 ☐ Graduate (or lower) 2 ☐ Post-graduate (non-doctorate) 3 ☐ Doctorate
4 ☐ Postdoc 5 ☐ Other-*Specify* ↙ 6 ☐ Unknown

_____

EMP.6 What was the DESIRABLE education level required for the PRINCIPAL JOB you held on 1 December <200X>?

Mark (X) ONLY one

1 ☐ Graduate (or lower) 2 ☐ Post-graduate (non-doctorate) 3 ☐ Doctorate
4 ☐ Postdoc 5 ☐ Other-*Specify* ↙ 6 ☐ Unknown

_____

*EMP.7 To what extent was your work on your PRINCIPAL JOB held on 1 December <200X> related to your doctoral degree?

Mark (X) ONLY one

1 ☐ Closely related 2 ☐ Partly related 3 ☐ Not related

EMP.8 If the PRINCIPAL JOB you held on 1 December <200X> was a part-time job, were you searching for a full-time job?

1 ☐ Yes 2 ☐ No 3 ☐ Not applicable

***EMP.9 Please rate your satisfaction with your PRINCIPAL JOB's…**

Mark (X) ONLY one for each item	Very Satisfied	Somewhat Satisfied	Somewhat Dissatisfied	Very Dissatisfied
4. Salary	1 ☐	2 ☐	3 ☐	4 ☐
5. Benefits	1 ☐	2 ☐	3 ☐	4 ☐
6. Job security	1 ☐	2 ☐	3 ☐	4 ☐
7. Job location	1 ☐	2 ☐	3 ☐	4 ☐
8. Working conditions	1 ☐	2 ☐	3 ☐	4 ☐
9. Opportunities for advancement	1 ☐	2 ☐	3 ☐	4 ☐
10. Intellectual challenge	1 ☐	2 ☐	3 ☐	4 ☐
11. Level of responsibility	1 ☐	2 ☐	3 ☐	4 ☐
12. Degree of independence	1 ☐	2 ☐	3 ☐	4 ☐
13. Contribution to society	1 ☐	2 ☐	3 ☐	4 ☐
14. Social status	1 ☐	2 ☐	3 ☐	4 ☐

PAST EMPLOYMENT

***EMP.10 Please list your past employers for the last 10 years in reverse chronological order (your most recent jobs first).**

Note that this section excludes your current position(s) (if any), already discussed in EMP.4.

Previous position 1			
Dates of employment	*From:* ☐ *yyyy (year)* *To:* ☐ *yyyy (year)*		
Name of employer			
Location	**City** ☐ **State/Province** ☐ **Country** ☐		
Sector of employment Mark (X) ONLY one (See Manual: Definition 10: Sector of employment)	☐ Business enterprise sector ☐ Governmental sector ☐ Higher education sector ☐ Other education sector ☐ Private non-profit sector (including self-employed)		
Occupation	*Please be as specific as possible, including any area of specialization:* ☐		
Type of position	*Mark (X) ONLY one (see Manual: Definition 8: Temporary/permanent employment)* ☐ Permanent ☐ Temporary	*Mark (X) ONLY one (see Manual: Definition 9: Full-time/part-time employment)* ☐ Full-time ☐ Part-time	*Mark (X) ONLY one* ☐ POSTDOC ☐ non-POSTDOC
Reasons for having left			

Previous position 2			
Dates of employment	*From:* ☐ *yyyy (year)* *To:* ☐ *yyyy (year)*		
Name of employer			
Location	**City** ☐ **State/Province** ☐ **Country** ☐		
Sector of employment Mark (X) ONLY one (See Manual: Definition 10: Sector of employment)	☐ Business enterprise sector ☐ Governmental sector ☐ Higher education sector ☐ Other education sector ☐ Private non-profit sector (including self-employed)		
Occupation	*Please be as specific as possible, including any area of specialization:* ☐		
Type of position	*Mark (X) ONLY one (see Manual: Definition 8: Temporary/permanent employment)* ☐ Permanent ☐ Temporary	*Mark (X) ONLY one (see Manual: Definition 9: Full-time/part-time employment)* ☐ Full-time ☐ Part-time	*Mark (X) ONLY one* ☐ POSTDOC ☐ non-POSTDOC
Reasons for having left			

Previous position 3			
Dates of employment	*From:* ☐ *yyyy (year)* *To:* ☐ *yyyy (year)*		
Name of employer			
Location	**City** ☐ **State/Province** ☐ **Country** ☐		
Sector of employment Mark (X) ONLY one (See Manual: Definition 10: Sector of employment)	☐ Business enterprise sector ☐ Governmental sector ☐ Higher education sector ☐ Other education sector ☐ Private non-profit sector (including self-employed)		
Occupation	*Please be as specific as possible, including any area of specialization:* ☐		
Type of position	*Mark (X) ONLY one (see Manual: Definition 8: Temporary/permanent employment)* ☐ Permanent ☐ Temporary	*Mark (X) ONLY one (see Manual: Definition 9: Full-time/part-time employment)* ☐ Full-time ☐ Part-time	*Mark (X) ONLY one* ☐ POSTDOC ☐ non-POSTDOC
Reasons for having left			

If you have had more jobs, please continue this list in a separate page.

UNEMPLOYED OR INACTIVE PERSONS

IF YOU WERE EMPLOYED ON 1 DECEMBER <200X>, SKIP THE REST OF THIS MODULE AND GO TO <NEXT MODULE>

EMP.11 If you were UNEMPLOYED on 1 December <200X> (available for work and searching for a job), which steps had you taken to find a job during <the four preceding weeks>?

Mark (X) Yes or No for each item		*Yes*	*No*
1.	Having been in contact with a public or private employment agency to find a job	1 ☐	2 ☐
2.	Applying to employers directly	1 ☐	2 ☐
3.	Placing or answering newspaper advertisements	1 ☐	2 ☐
4.	Conducting Internet job searches	1 ☐	2 ☐
5.	Checking at worksites, farms, factory gates or other assembly places	1 ☐	2 ☐
6.	Seeking assistance of friends or relatives	1 ☐	2 ☐
7.	Seeking assistance from professional colleagues	1 ☐	2 ☐
8.	Looking for land, building, machinery or equipment to establish own enterprise	1 ☐	2 ☐
9.	Taking a recruitment test or being interviewed	1 ☐	2 ☐
10.	Applying for permit, licences or financial resources	1 ☐	2 ☐
11.	Other- *Specify* ↘	1 ☐	2 ☐

_____

SKIP THE REST OF THIS MODULE AND GO TO <NEXT MODULE>

EMP.12 If you were INACTIVE on 1 December <200X> (not available for work and not searching for a job), what were the reasons that you were not available for work or were not looking for a job during <the four preceding weeks >?

Mark (X) Yes or No for each item		*Yes*	*No*
1.	Own illness or disability	1 ☐	2 ☐
2.	Caring for own children	1 ☐	2 ☐
3.	Caring for other relative	1 ☐	2 ☐
4.	Other personal or family responsibilities	1 ☐	2 ☐
5.	Retirement	1 ☐	2 ☐
6.	Attendance at educational institution	1 ☐	2 ☐
7.	Belief that no work is available	1 ☐	2 ☐
8.	Do not need or want to work	1 ☐	2 ☐
9.	Other- *Specify* ↘	1 ☐	2 ☐

_____

GO TO <NEXT MODULE>

Module MOB - International mobility

IF YOU ONLY LIVED IN <THE COUNTRY X>, SKIP TO MOB.6

***MOB.1 List the countries in which you have lived between January <200X-9> and December <200X>and indicate the period of residency. (Include <THE COUNTRY X>)**

Country	*Period of residency*			
	From:		To:	
	Month (mm)	Year (yyyy)	Month (mm)	Year (yyyy)
<THE COUNTRY X>			------	------

If you need more lines, please continue this list on an extra page.

***MOB.2 If you moved OUT of <THE COUNTRY X> between January <200X-9> and December <200X>, please indicate the reasons for this decision.** ☐ *Not applicable*

Mark (X) Yes or No for each item	*Yes*	*No*
A. Completion of doctorate	1 ☐	2 ☐
B. End of POSTDOC or job contract	1 ☐	2 ☐
C. Other job related factors: Sent by employer, offer (or better chances for) a job, POSTDOC or better paid job	1 ☐	2 ☐
D. Academic factors: Bigger access to publishing, development or continuity of thesis work, work in a specific area not existent inside <THE COUNTRY X>, Possibility of creation of own research team or new research area	1 ☐	2 ☐
E. Personal, economic or political factors: Family or personal reasons, Economic or political reason, End of residence permit / visa	1 ☐	2 ☐
F. Other-Specify ↙ _____	1 ☐	2 ☐

***MOB.3 If you moved INTO <THE COUNTRY X> between January <200X-9> and December <200X>, please indicate the reasons for this decision.** ☐ *Not applicable*

Mark (X) Yes or No for each item	*Yes*	*No*
A. Completion of doctorate	1 ☐	2 ☐
B. End of POSTDOC or job contract	1 ☐	2 ☐
C. Other job related factors: Sent by employer, offer of (or better chances for) a job, POSTDOC or a better paid job	1 ☐	2 ☐
D. Academic factors: Bigger access to publishing, development or continuity of thesis work, work in a specific area not existent inside the country of your previous residence, possibility of creation of own research team or new research area	1 ☐	2 ☐
E. Personal, economic or political factors: Family or personal reasons, Economic or political reason, End of residence permit / visa	1 ☐	2 ☐
F. Other-Specify ↙ _____	1 ☐	2 ☐

***MOB.4 If you moved into <THE COUNTRY X> and plan to leave, indicate how long you plan to stay in <THE COUNTRY X>.** ☐ *Not applicable*

PLANNED TOTAL LENGTH OF STAY ☐ Months

MOB. 5 Are you still linked to your country of origin? ☐ *Not applicable*

Mark (X) Yes or No for each item	*Yes*	*No*
1. You keep in touch with official "Diaspora" networks (*i.e.* networks of nationals from your country of origin living abroad)	1 ☐	2 ☐
2. You have a wide informal network formed by friends/ acquaintances/ colleagues from your country of origin	1 ☐	2 ☐
3. You are available for various possible linkage mechanisms (visits, training, joint projects, mentoring, fundraising)	1 ☐	2 ☐
4. You maintain business relationships with your country of origin	1 ☐	2 ☐
5. You collaborate with national professional associations in your country of origin	1 ☐	2 ☐
6. You collaborate with scientific journals in your country of origin	1 ☐	2 ☐

***MOB.6 Do you intend to move out of <THE COUNTRY X> within the next 12 months?**

1 ☐ **Yes, Permanently**
2 ☐ **Yes, Temporarily**
3 ☐ *No* → ***SKIP THE REST OF THIS MODULE AND GO TO <NEXT MODULE>***

***MOB.7 (**IF YES**) In what country do you intend to live within the next year?**

Country_____

*MOB.8 Indicate the reasons for this decision?

Mark (X) Yes or No for each item		*Yes*	*No*
A.	End of POSTDOC or job contract	1 ☐	2 ☐
B.	Other job related factors: Sent by employer, offer (or better chances for) a job, POSTDOC or better paid job	1 ☐	2 ☐
C.	Academic factors: Bigger access to publishing, development or continuity of thesis work, work in a specific area not existent inside <THE COUNTRY X>, Possibility of creation of own research team or new research area	1 ☐	2 ☐
D.	Personal, economic or political factors: Family or personal reasons, Economic or political reason, End of residence permit / visa	1 ☐	2 ☐
E.	Other-Specify ↙ _____	1 ☐	2 ☐

MOB.9 Have you taken any steps to follow through with your plans?

Mark (X) Yes or No for each item		*Yes*	*No*
1.	Learnt a foreign language	1 ☐	2 ☐
2.	Browsed and looked for job advertisements	1 ☐	2 ☐
3.	Used existing contacts to look for work	1 ☐	2 ☐
4.	Contacted a potential employer	1 ☐	2 ☐
5.	Signed contract or made definite commitment for work or study	1 ☐	2 ☐
6.	Applied for a visa / residency permit	1 ☐	2 ☐
7.	Found an apartment / a house to live in	1 ☐	2 ☐
8.	Sold property in the country of origin	1 ☐	2 ☐

Module CAR - Career related experience and scientific productivity

***CAR.1 Were you performing one or several of the following tasks in your job(s) you held on 1 December <200X>?**

Mark (X) Yes or No for each item	Yes	% of time	No
1. Carrying out / supervising research	1 ☐	☐☐☐	2 ☐
2. Improving current products / processes	1 ☐	☐☐☐	2 ☐
3. Developing new products / processes	1 ☐	☐☐☐	2 ☐

If in total you spent more than 10% of your time on activities 1.+2.+3., ***GO TO CAR.5***

"Researchers" are professionals engaged in the conception or creation of new knowledge, products, processes, methods and systems and also in the management of the projects concerned. *See Manual: Definition 12: Researcher*

NON-RESEARCHERS

CAR.2 Why were you not working as a researcher on 1 December <200X>?

Mark (X) all that apply

1 ☐ Not interested in research
2 ☐ Very limited job opportunities in research
3 ☐ There is no clear career structure within research
4 ☐ Low remuneration
5 ☐ Disadvantaged working conditions
6 ☐ Poor public recognition of career in research
7 ☐ Unclear long term career prospects
8 ☐ Other- *Specify* ↘

_____

CAR.3 Are you considering changing your current career into a research career in the next <three years>?

1 ☐ Yes 2 ☐ No

***CAR.4 Have you worked as a researcher earlier in your career?**

1 ☐ Yes 2 ☐ No → ***SKIP THE REST OF THIS MODULE AND GO TO <NEXT MODULE>***

RESEARCHERS (CURRENT AND FORMER)

CAR. 5 Why did you choose a research career?

Mark (X) all that apply

1 ☐ Creativity and innovativeness of work
2 ☐ Well paid job
3 ☐ Benefits
4 ☐ Opportunities for advancement
5 ☐ Job security
6 ☐ Working conditions
7 ☐ Degree of independence
8 ☐ Contribution to society
9 ☐ Other employment not available
10 ☐ Research generally expected for career
11 ☐ Other-*Specify* →

_____

*CAR.6 How long have you worked as a researcher?

From: ☐☐☐☐ (yyyy) (year) To: ☐☐☐☐ (yyyy) (year)
(leave blank if still working as a researcher on 1 December <200X>)

CAR.7 How long did it take you to obtain a permanent or tenure-track position after the completion of your doctoral degree? (if applicable)

☐☐☐ months

*CAR.8 How many articles, (co)authored by you, have been published or accepted for publication in a refereed professional journal between January <200X-2> and December <200X>?

NUMBER OF ARTICLES ☐☐☐

*CAR.9 How many books, monographs, and book chapters, (co)authored by you, have been published or accepted for publication between January <200X-2> and December <200X>?

NUMBER OF BOOKS OR MONOGRAPHS ☐☐☐

*CAR.10 On how many PATENT APPLICATIONS have you been named as an inventor between January <200X-2> and December<200X>?

NUMBER OF PATENT APPLICATIONS ☐☐☐

*CAR.11 How many patents have been GRANTED to you as an inventor between January<200X-2> and December <200X>?

NUMBER OF PATENTS GRANTED ☐☐☐

***CAR.12 How many of your patents have resulted in commercialized products or processes or have been licensed between January <200X-2> and December< 200X>?**

NUMBER OF PATENTS RESULTING IN COMMERCIALIZED PRODUCTS OR PROCESSES, OR LICENSED ☐

***CAR.13 Have you started up a company between January <200X-2> and December <200X>?**

1 ☐ Yes 2 ☐ No

CAR.14 Have you conducted mentorship programmes or training programmes between January <200X-2> and December< 200X>?

1 ☐ Yes 2 ☐ No

CAR.15 Have you supervised Master theses or Doctorate theses between January <200X-2> and December< 200X>?

Mark (X) Yes or No for each item		*Yes*	*No*
9.	Master theses	1 ☐	2 ☐
10.	Doctorate theses	1 ☐	2 ☐

CAR.16 Have you conducted research in co-operation with research groups outside the country between January <200X-2> and December < 200X>?

1 ☐ Yes 2 ☐ No

Module PER - Personal characteristics

*** PER.1 Are you:**

1 ☐ Male 2 ☐ Female

***PER.2 What is your date of birth?**

DAY ☐☐ (dd) MONTH ☐☐ (mm) YEAR ☐☐☐☐ (yyyy)

***PER.3 Where is your place of birth?**

City ☐☐☐☐☐☐☐☐☐☐ *State/Province* ☐☐☐☐☐☐☐☐☐☐ *Country* ☐☐☐☐☐☐☐☐☐☐

PER.4 What is your citizenship/resident status in <the country X> (See Manual: Definition 13: Citizenship status; Definition 14: Resident status***)?**

1 ☐ Citizen by birth
2 ☐ Citizen by naturalization
3 ☐ Permanent resident
4 ☐ Non-permanent resident
5 ☐ Refugee

PER.5 Please list the countries of your citizenship

Country 1 ☐☐☐☐☐☐☐☐☐☐ *Country 2* ☐☐☐☐☐☐☐☐☐☐ *Country 3* ☐☐☐☐☐☐☐☐☐☐

PER.6 What is your marital status?

Mark (X) ONLY one

1 ☐ Married
2 ☐ Living in a <marriage-like relationship>
3 ☐ Separated
4 ☐ Divorced
5 ☐ Widowed
6 ☐ Never married

PER.7 How many dependents do you have?

	Number	***Number***	***Number***
	5 years or younger ☐☐	6 to 18 years ☐☐	19 years or older ☐☐

PER.8 In case we need to clarify some of the information you have provided, please list phone numbers and an e-mail address where you can be reached.

	Area Code	**Number**
DAYTIME:		
EVENING:		

E-mail_____**@**_____

INSTRUCTION MANUAL FOR COMPLETING THE QUESTIONNAIRE ON CAREERS OF DOCTORATE HOLDERS (CDH)

INTRODUCTORY NOTE

The present manual has been drafted in accordance with the definitions and methodological guidelines prepared in the framework of the CDH project.

This manual should be considered as a model for countries to adapt to the national needs. Countries may also include instructions or definitions directly in the questionnaire.

In the first section of this manual, countries can incorporate text describing the institution(s) carrying out the survey.

For any queries relating to the adaptation of this manual, do not hesitate to contact the UNESCO Institute for Statistics by e-mail: **stsurvey@uis.unesco.org** or by fax: +**1 (514) 343-6872**.

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INTRODUCTION

<Introduction of institution carrying out the survey>

The international Survey on Careers of Doctorate Holders (CDH) is a joint project carried out by the UNESCO Institute for Statistics (UIS), the Organisation for Economic Co-operation and Development (OECD) and the Statistical Office of the European Commission (Eurostat). The project focuses on doctorate holders who are considered to be crucial to the production, application and diffusion of knowledge.

The present questionnaire is designed to collect the most recent statistics on educational history, work experience and international mobility of doctorate holders throughout the world. The main objectives of the questionnaire are:

- To build internationally comparable indicators on careers of doctorate holders.
- To identify and analyse trends on careers paths and mobility of highly qualified people throughout the world.

The improvement and harmonisation of data collection in a broad number of countries and its further analysis should enable policy makers, researchers and practitioners to conduct the appropriate policies with regard to highly qualified people in order to ensure their career development all over the world.

The instruction manual has been prepared in order to help respondents completing the questionnaire. The manual comprises the definitions and other guidelines which should be followed in order to facilitate international comparison of the statistics provided by different countries.

The definitions and classification presented in this manual are based on the different internationally recognised sources such as *Frascati Manual (OECD)*, *International Labour Organization (ILO) Resolutions Concerning Economically Active Population*, *Employment, Unemployment and Underemployment Adopted by the 13th International Conference of Labour Statisticians (October 1982)*, *National Science Foundation Survey of Doctorate Recipients, International Standard Classification of Education (ISCED-1997)*, *International Standard Classification of Occupations (ISCO-88)* and others (see sources related to the presented definitions).

1. COVERAGE OF THE QUESTIONNAIRE

The questionnaire is designed to collect data on all individuals who on the reference date are fulfilling the following criteria:

- Having an education at ISCED 6 level (see **definition 1**) obtained anywhere in the world, and
- Being resident (permanent or non-permanent) within the national borders of the surveying country.

Definition 1: ISCED 6 (Doctorate)

ISCED 6: LEVEL 6 – SECOND STAGE OF TERTIARY EDUCATION (LEADING TO AN ADVANCED RESEARCH QUALIFICATION)

Principal characteristics

This level is reserved for tertiary programmes which lead to the award of an advanced research qualification. The programmes are therefore devoted to advanced study and original research and are not based on course-work only.

Classification criteria

For the definition of this level, the following criteria are relevant:

Main criterion

It typically requires the submission of a thesis or dissertation of publishable quality which is the product of original research and represents a significant contribution to knowledge.

Subsidiary criterion

It prepares graduates for faculty posts in institutions offering ISCED 5A programmes, as well as research posts in government, industry, etc.

Includes also:

The part concentrating on advanced research in those countries where students beginning tertiary education enrol directly for an advanced research programme.

Source: UNESCO International Standard Classification of Education 1997 (ISCED-1997).

2. INSTRUCTIONS FOR COMPLETING THE QUESTIONNAIRE

Not all questions will apply to everyone. You may be asked to skip certain questions.

- Please use an "X" when answering questions that require marking a box.
- In order to obtain comparable data, we will be asking you to refer to 1 December <200X>.
- Follow all "SKIP" and "GO TO" instructions after marking a box.
- Either a pen or pencil may be used.
- If you need to change an answer, please make sure that your old answer is either completely erased or clearly crossed out.

The present questionnaire has been drafted in accordance with the definitions and methodological guidelines prepared in the framework of the CDH project in order to facilitate international comparison of the statistics provided by different countries. Please refer to the definitions in this Manual for further clarification.

The questionnaire consists of the following modules:

- EDU – Doctoral education
- REC - Recent graduates
- POS - POSTDOCS
- EMP - Employment situation
- CAR - Career-related experience and scientific productivity
- MOB - International mobility
- PER - Personal characteristics

Your assistance is essential to ensure that the results are meaningful. Your answers will be kept strictly confidential and used for statistical purposes only. Any information publicly released (such as statistical summaries) will be in a form that does not personally identify you.

<Your response is voluntary and failure to provide some or all of the requested information will not in any way adversely affect you.>

Actual time to complete the questionnaire may vary depending on your circumstances. On average, it will take about 20 minutes to complete the questionnaire.

MODULE EDU – DOCTORAL EDUCATION

Module Education aims to provide information on educational history of doctorates holders.

This module will supply information on specific characteristics of doctorates holders, such as date of award, field of science, sources of financial support, duration of doctoral program and country of previous degree.

You will find below the relationship between the questions and related definitions and classifications.

In order to respond to **question EDU.2** which asks you to provide information on field of science and technology corresponding to your doctoral studies, please refer to **classification 1**.

Classification 1: Field of Science and Technology

1. NATURAL SCIENCES

- 1.1. Mathematics
- 1.2. Computer and information sciences (excluding hardware development and social aspect)
- 1.3. Physical sciences
- 1.4. Chemical sciences
- 1.5. Earth and environmental sciences
- 1.6. Biological sciences (excluding medical and agricultural sciences)
- 1.7. Other natural sciences

2. ENGINEERING AND TECHNOLOGY

- 2.1. Civil engineering
- 2.2. Electrical engineering, electronic engineering, information engineering
- 2.3. Mechanical engineering
- 2.4. Chemical engineering
- 2.5. Materials engineering
- 2.6. Medical engineering
- 2.7. Environmental engineering
- 2.8. Environmental biotechnology
- 2.9. Industrial biotechnology
- 2.10. Nanotechnology
- 2.11. Other engineering and technologies (food, beverages and other)

3. MEDICAL AND HEALTH SCIENCES

- 3.1. Basic medicine
- 3.2. Clinical medicine
- 3.3. Health sciences
- 3.4. Medical biotechnology
- 3.5. Other medical sciences (forensic and other medical sciences)

4. AGRICULTURAL SCIENCES

- 4.1. Agriculture, forestry and fisheries
- 4.2. Animal and dairy science
- 4.3. Veterinary science
- 4.4. Agricultural biotechnology
- 4.5. Other agricultural sciences

5. SOCIAL SCIENCES

- 5.1. Psychology
- 5.2. Economics and business
- 5.3. Educational sciences
- 5.4. Sociology
- 5.5. Law
- 5.6. Political science
- 5.7. Social and economic geography
- 5.8. Media and communications
- 5.9. Other social sciences

6. HUMANITIES

- 6.1. History and Archaeology
- 6.2. Languages and literature
- 6.3. Philosophy, ethics and religion
- 6.4. Arts (arts, history of arts, performing arts, music)
- 6.5. Other humanities

Source: New Fields of Science classification of the *Frascati Manual*.

When answering **question EDU.7** which requires that you supply an estimate of the time taken off for any purpose other than preparing the doctorate during the period between when you started your doctorate program and your doctorate was granted, please sum up the time taken off for reasons such as irrelevant temporary jobs to sustain funding throughout the doctoral programme, or for personal, family or maternity/paternity leave reasons. However, time spent on study or work abroad relevant to your doctoral programme should not be counted as "taken off". When answering this question, please make sure that you round the number of months to whole months.

When answering **question EDU.8** which requires that you supply the country in which you received your previous university degree (at ISCED 5 level), please take into account **definition 2**.

Definition 2: ISCED 5 – First Stage of Tertiary Education (not leading directly to an advanced research qualification)

ISCED 5 is composed of two different types of tertiary programmes, not leading directly to the award of an advanced research qualification (such as doctorates, which are at ISCED level 6):

ISCED 5A programmes are tertiary programmes that are largely theoretically based and are intended to provide sufficient qualifications for gaining entry into advanced research programmes and professions with high skills requirements. They must satisfy a sufficient number of the following criteria:

- A minimum cumulative theoretical duration (at tertiary) of three years' full-time equivalent, although typically they are of 4 or more years.
- Faculty with advanced research credentials.
- May involve completion of a research project or thesis.
- Provide the level of education required for entry into a profession with high skills requirements (theoretically based/research preparatory, such as history, philosophy, mathematics, etc., or giving access to professions with high skills requirements, *e.g.* medicine, dentistry, architecture, etc.) or an advanced research programme.

This level typically includes programmes such as "Bachelors", as well as all the research programmes which are not part of a doctorate, such as any type of Master's degrees.

ISCED 5B programmes are tertiary programmes typically shorter than those in 5A and focus on occupationally specific skills geared for entry into the labour market, although some theoretical foundations may be covered in the respective programme. The content of ISCED level 5B programmes is practically oriented/occupationally specific and is mainly designed for participants to acquire the practical skills and know-how needed for employment in a particular occupation or trade or class of occupations or trades – the successful completion of which usually provides the participants with a labour-market relevant qualification.

Source: UNESCO International Standard Classification of Education 1997 (ISCED-1997).

MODULE REC – RECENT GRADUATES

This module is addressed only to recent graduates:

Definition 3: Recent graduates

A recent graduate is a person who received her/his doctorate degree at any time between January <200X-1> and December <200X>.

The module aims to provide a more complete educational history, including names and locations of secondary and post-secondary institutions recent graduates have attended, dates of attendance, field of study, and whether and when they received each of their degrees. Graduates receiving their doctoral degree before January <200X-1> are not requested to complete this module.

Question REC.1 is a filter question enabling to identify if you are a recent graduate and consequently whether or not you need to fill out this module.

In order to fill out the table corresponding to **question REC.2** you should refer to **classification 2**.

When replying to **question REC.3**, please refer to **definition 4**.

Definition 4: Career path job

A **"career path job"** is a job that will help further your career plans or is a job in a field where you want to make your career.

When replying to **question REC.2**, please refer to **classification 2**.

Classification 2: Field of study

The titles in bold are broad field of study categories. To make sure you have found the BEST code, please review ALL broad categories before making your choice.

GENERAL PROGRAMMES

01 Basic programmes
08 Literacy and numeracy
09 Personal development

EDUCATION

14 Teacher training and education sciences

HUMANITIES AND ARTS

21 Arts
22 Humanities

SOCIAL SCIENCES, BUSINESS AND LAW

31 Social and behavioural science
32 Journalism and information
34 Business and administration
38 Law

SCIENCE

42 Life science
44 Physical sciences
46 Mathematics and statistics
48 Computing

ENGINEERING, MANUFACTURING AND CONSTRUCTION

52 Engineering and engineering trades
54 Manufacturing and processing
58 Architecture and building

AGRICULTURE

62 Agriculture, forestry and fishery
64 Veterinary

HEALTH AND WELFARE

72 Health
76 Social services

SERVICES

81 Personal services
84 Transport services
85 Environmental protection
86 Security services

NOT KNOWN OR UNSPECIFIED

(This category is not part of the classification itself but in data collection "99" is needed for 'fields of education not known or unspecified')

Source: International Standard Classification of Education (ISCED-1997).

The ISCED 97 manual can be found on the UIS website, http://uis.unesco.org/ (under "Education", "Technical Guides"). A more detailed classification of "Field of Training" developed by Eurostat, expanding and detailing ISCED97, can be found on its Ramon server at http://europa.eu.int/comm/eurostat/ramon/.

MODULE POS – POSTDOCS

This module addresses persons who were on a POSTDOC position on 1 December <200X>. It is generally understood that a post-doc is a temporary position for doctorate holders (*i.e.* after finalising their doctoral studies) where the main activity is research, and the holder receives some kind of financial support. However, there are very different forms of POSTDOC positions worldwide. In order to assess the extent to which these positions have comparable characteristics, please respond to whether your position is regarded to be a "POSTDOC" one in that particular country's context, and provide the exact title and field of your POSTDOC position (in your own language).

In question POS.1, if on 1 December <200X> you were unemployed or inactive, please tick NO and skip this module.

Please use the FIELDS OF SCIENCE & TECHNOLOGY classification (see Classification 1) to reply to question POS.3.

MODULE EMP – EMPLOYMENT SITUATION

Module Employment situation aims to furnish information on career development of doctorate holders.

Information that should be provided is for example your employment status, your occupation, type of contract (POSTDOC, temporary or permanent employment, part-time or full-time job), combined annual salary (in national currency).

This module includes a section on PAST EMPLOYMENT dealing with the retrospective career history of doctorate holders, gathering information on work experience within the ten past years (including occupation, dates, years of experience, and reasons for leaving previous positions).

In order to respond to **question EMP.1** which asks you to provide information on your employment status on 1 December <200X>, please refer to **definitions 5, 6 and 7**.

Definition 5: Employed

The employed comprise all persons above a specified age who during a specified brief period, either one week or one day, were in the following categories:

(a) paid employment:

- at work: persons who during the reference period performed some work for a wage or salary, in cash or in kind;
- with a job but not at work: persons who, having already worked in their present job, were temporarily not at work during the reference period and had a formal attachment to their job. This formal attachment should be determined in the light of national circumstances, according to one or more of the following criteria: the continued receipt of wage or salary; an assurance of return to work following the end of the contingency, or an agreement as to the date of return; the elapsed duration of absence from the job which, wherever relevant, may be that duration for which workers can receive compensation benefits without obligations to accept other jobs;

(b) self-employment:

- at work; persons who during the reference period performed some work for profit or family gain, in cash or in kind;
- with an enterprise but not at work: persons with an enterprise, which may be a business enterprise, a farm or a service undertaking, who were temporarily not at work during the reference period for any specific reason.

Source: International Labour Organization (ILO) Resolutions Concerning Economically Active Population, Employment, Unemployment and Underemployment Adopted by the 13th International Conference of Labour Statisticians, October 1982, para. 9.

Definition 6: Unemployed

The unemployed comprise all persons above a specified age who during the reference period were:

- without work, that is, were not in paid employment or self employment during the reference period;
- currently available for work, that is, were available for paid employment or self-employment during the reference period; and
- seeking work, that is, had taken specific steps to seek paid employment or self-employment.

The specific steps may include registration at a public or private employment exchange; application to employers; checking at worksites, farms, factory gates, market or other assembly places; placing or answering newspaper advertisements; seeking assistance of friends or relatives; looking for land, building, machinery or equipment to establish own enterprise; arranging for financial resources; applying for permits and licences, etc.

Source: International Labour Organization (ILO) Resolutions Concerning Economically Active Population, Employment, Unemployment and Underemployment Adopted by the 13th International Conference of Labour Statisticians, October 1982, para. 10.

Definition 7: Inactive

The "population not currently active", or, equivalently, persons not in the labour force, comprises all persons who were not employed or were unemployed and hence not currently active because of (a) attendance at educational institutions, (b) engagement in household duties, (c) retirement or old age, or (d) other reasons such as infirmity or disablement, which may be specified.

Source: International Labour Organization (ILO) Resolutions Concerning Economically Active Population, Employment, Unemployment and Underemployment Adopted by the 13th International Conference of Labour Statisticians, October 1982, para. 12.

Definition 8: Temporary/permanent employment

Temporary employment comprises work under a fixed-term contract, in contrast to permanent work where there is no end-date. Employment under temporary contracts often entails a different set of legal obligations on behalf of employers; in particular, certain aspects of employment protection legislation do not apply to temporary contracts.

Source: International Labour Organization (ILO) Resolutions Concerning Economically Active Population, Employment, Unemployment and Underemployment Adopted by the 13th International Conference of Labour Statisticians, October 1982, para. 12.

When answering **questions EMP.4 and EMP.10** which ask you to provide information on sector of employment, occupation and type of position you held, you need to refer to **definitions 8, 9 and 10**. When asked about your Occupation in **EMP.4 and EMP.10**, please provide a detailed description, including any area of specialisation, for example: “College professor-Electrical engineering”, ‘’Research mathematician” or “Network engineer, communication hardware”.

In order to answer **question EMP.3** in which you are asked to provide data on your gross annual earnings for the reference year, please refer to **definition 11** or adapt this question to your national needs. Please make sure that you indicated your salary in national currency.

Definition 9: Full-time/part-time employment

Persons usually working less than 30 hours a week are considered as part-timers.

Source: Definition of Part-time Work for the Purpose of International Comparisons, A. Bastelaer, G. Lemaitre, P. Marianna, Labour Market and Social Policy Occasional Papers – No. 22, OECD, 1997, page 12.

You may not be in a position to answer questions EMP.5 and EMP.6 unless it was a specified condition of employment. If that's the case, please tick option 6: Unknown.

Definition 10: Sector of employment

Business enterprise sector includes:

- All firms, organisations and institutions whose primary activity is the market production of goods or services (other than higher education) for sale to the general public at an economically significant price.
- The private non-profit institutions mainly serving them.

The **government sector** includes:

- All departments, offices and other bodies which furnish, but normally do not sell to the community, those common services, other than higher education, which cannot otherwise be conveniently and economically provided, as well as those that administer the state and the economic and social policy of the community. (Public enterprises mainly engaged in market production and sale of goods and services are included in the business enterprise sector.)
- Non-profit institutions controlled and mainly financed by government, not administered by the higher education sector.

The **private non-profit** sector includes non-market units controlled and mainly financed by non-profit institutions serving households (NPHS), notably professional and learned societies and charities, other than those providing education services or administered by education institutions. However, R&D foundations managed by NPHS but having more than 50% of their running costs covered by a block grant from government should be included in the government sector. **The private non-profit sector also includes private individuals who are self-employed.**

The **higher education** sector is composed of:

- All universities, colleges of technology and other institutions providing tertiary education, whatever their source of finance or legal status.
- It also includes all research institutes, experimental stations and clinics under the direct control of or administered by or associated with higher education institutions.

Other education sector is composed of all institutions providing pre-primary, primary or secondary education, whatever their source of finance or legal status.

Source: Frascati Manual (OECD 2002), and UIS.

Definition 11: Gross annual earnings

Gross annual earnings cover remuneration in cash and in kind paid during <200X> before any tax deductions and social-security contributions payable by wage earners and retained by the employer.

Source: Eurostat.

MODULE MOB – INTERNATIONAL MOBILITY

Module International mobility is foreseen to make available information on the mobility patterns of doctorate holders.

This module aims to measure the inflows and outflows of doctorates, to distinguish temporary mobility from permanent mobility, to identify the reasons for departure and return as well as to provide data on your intentions to move out of the country within the next year including the destination planned.

MODULE CAR – CAREER RELATED EXPERIENCE AND SCIENTIFIC PRODUCTIVITY

This module is foreseen in order to provide data on your scientific output and experience linked to your career path.

The module includes a section on RESEARCHERS that enquires about experience in research. When answering **questions CAR.2, CAR.3, CAR.4, CAR.5, CAR.6**, please relate to **definition 12**.

Definition 12: Researcher

Researchers are professionals engaged in the conception or creation of new knowledge, products, processes, methods and systems and also in the management of the projects concerned.

Source: Frascati Manual (OECD 2002).

MODULE PER – PERSONAL CHARACTERISTICS

The Module PER – "Personal characteristics" collects information on features such as:

- Marital status
- Number of dependents
- Place of birth, date of birth, citizenship status and resident status
- Contact information

When responding to **question PER.4** which asks you to supply data on your citizenship and residential status in <the country X>, please refer to **definitions 13 and 14**.

Definition 13: Citizenship status

Citizenship is defined as the particular legal bond between an individual and his/her State, acquired by birth or naturalization, whether by declaration, option, marriage or other means according to the national legislation.

A citizen is therefore a person with the legal nationality of a country.

In case of dual or multiple citizenships, the person should be counted only once and reported as citizen if he holds the nationality of the reporting country and as non-citizen in any other case.

Source: Recommendations for the 2000 censuses of population and housing in the Economic Commission for Europe (ECE) region and United Nation Recommendations on International Migration.

Definition 14: Resident status

Country of permanent or usual residence is the country where the person usually resides; this may be the same as, or different from, the place where he/she actually is at the time of the survey; or it may be his/her legal residence.

Permanent or usual residence in the reporting country or in other countries should be counted according to the national legislations and no attempt is done to harmonize. Legislation concerning residence can vary widely between countries and countries are asked to complete the tables in the way they can apply the concept of "permanent or usual residence". In practice, distinguishing between “permanent resident” and “non-permanent resident” can be done in a number of ways, for example according to whether the person holds a visa or permit.

Source: Recommendations for the 2000 censuses of population and housing in the Economic Commission for Europe (ECE) region and UIS/OECD/EUROSTAT (UOE) data collection on education systems 2005 manual.

STATISTICS ON THE CAREERS OF DOCTORATE HOLDERS (CDH)

CDH OUTPUT INDICATORS TABLES

TABLE OF CONTENTS

REPORTING COUNTRY:

Table P1. NUMBER OF DOCTORATE HOLDERS BY SEX AND AGE CLASS

	Year 2004			Year 2005			Year 2006		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Less than 35 years old									
35-44 years old									
45-54 years old									
55-64 years old									
65-69 years old									
70 years old or more									
TOTAL									

Notes:

Source of data:

REPORTING COUNTRY:

Table P2.1. NUMBER OF DOCTORATE HOLDERS BY COUNTRY OF BIRTH, TYPE OF CITIZENSHIP AND RESIDENTIAL STATUS

	Citizens		Non citizens		*of which:* citizens from EU countries (requested from EU countries)	
Natives	Native and citizen by birth		Native and non citizen		Native and non citizen	
	Native and citizen by naturalisation					
Foreign born	Foreign born and citizen by birth		Foreign born, non citizen and resident		Foreign born, non citizen and resident	
	Foreign born and citizen by naturalisation		Foreign born, non citizen and non resident		Foreign born, non citizen and non resident	

Notes:

Source of data:

Table P2.2. NUMBER OF DOCTORATE HOLDERS BY CITIZENSHIP/RESIDENTIAL STATUS (optional)

	Year 2004				Year 2005				Year 2006			
	Citizens of the reporting country	Foreign citizens		Total	Citizens of the reporting country	Foreign citizens		Total	Citizens of the reporting country	Foreign citizens		Total
		Permanent residents	Non-permanent residents			Permanent residents	Non-permanent residents			Permanent residents	Non-permanent residents	
Total number of doctorate holders												
***Of which:* College, university and higher education teaching professionals (ISCO 231)**												
Control: Total number of doctorate holders from sheet P1				0				0				0

Notes:

Source of data:

REPORTING COUNTRY:

Table P3. NUMBER OF DOCTORATE HOLDERS BY SEX AND COUNTRY OF CITIZENSHIP

!! Please read note at end of table

	Year 2004			Year 2005			Year 2006		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
GRAND TOTAL									
Citizens of the reporting country									
of which:									
by birth									
by naturalisation									
Foreign citizens									
of which:									
permanent residents in the reporting country									
non-permanent residents in the reporting country									
Region of citizenship:									
Total European Union	0	0	0	0	0	0	0	0	0
Total OECD	0	0	0	0	0	0	0	0	0
Total non OECD	0	0	0	0	0	0	0	0	0
Region of citizenship:									
Total Africa									
Total America									
Total North America (Canada, Mexico, United States)	0	0	0	0	0	0	0	0	0
Total Central and South America	0	0	0	0	0	0	0	0	0
Total Asia									
Total Europe									
Total Oceania									
Country of citizenship:									
Argentina									
Austria									
Australia									
Belgium									
Bulgaria									
Canada									
China									
Croatia									
Cyprus									
Czech Republic									
Denmark									
Estonia									
Finland									
Former Yugoslav Republic of Macedonia									
France									
Germany									
Greece									
Hungary									
Iceland									
India									
Ireland									
Italy									
Japan									
Korea									
Latvia									
Lithuania									
Luxembourg									
Malaysia									
Malta									
Mexico									
Netherlands									
New Zealand									
Norway									
Poland									
Portugal									
Romania									
Russian Federation									
Slovak Republic									
Slovenia									
Spain									
Sweden									
Switzerland									
Turkey									
Uganda									
Ukraine									
United Kingdom									
United States									
xxx									
yyy									
zzz									
...									

Note: **Please, add any individual country for which there is a significant amount of foreign citizens in your country. If filling in individual country data poses confidentiality problems, please report observations to regional aggregate groupings only. For regional groupings that are not automatically calculated in the cells, please refer to: http://unstats.un.org/unsd/methods/m49/m49regin.htm**

Notes:

Source of data:

REPORTING COUNTRY:

Table P4. NUMBER OF DOCTORATE HOLDERS BY CITIZENSHIP/RESIDENTIAL STATUS AND AGE CLASS

	Year 2004				Year 2005				Year 2006			
	Citizens of the reporting country	Foreign citizens		Total	Citizens of the reporting country	Foreign citizens		Total	Citizens of the reporting country	Foreign citizens		Total
		Permanent residents	Non-permanent residents			Permanent residents	Non-permanent residents			Permanent residents	Non-permanent residents	
Less than 35 years old												
35-44 years old												
45-54 years old												
55-64 years old												
65-69 years old												
70 years old or more												
TOTAL												
Control: Total number of doctorate holders from sheet P1				0				0				0

Notes:

Source of data:

REPORTING COUNTRY:

Table P5. NUMBER OF DOCTORATE HOLDERS BY CITIZENSHIP/RESIDENTIAL STATUS AND FIELD OF DOCTORATE DEGREE

New OECD FOS classification		Year 2005				Year 2006			
		Citizens of the reporting country	Foreign citizens		Total	Citizens of the reporting country	Foreign citizens		Total
			Permanent residents	Non-permanent residents			Permanent residents	Non-permanent residents	
1	NATURAL SCIENCES								
1.1	Mathematics								
1.2	Computer and information sciences (excluding hardware development and social aspect)								
1.3	Physical sciences								
1.4	Chemical sciences								
1.5	Earth and environmental sciences								
1.6	Biological sciences (excluding medical and agricultural sciences)								
1.7	Other natural sciences								
2	ENGINEERING AND TECHNOLOGY								
2.1	Civil engineering								
2.2	Electrical engineering, electronic engineering, information engineering								
2.3	Mechanical engineering								
2.4	Chemical engineering								
2.5	Materials engineering								
2.6	Medical engineering								
2.7	Environmental engineering								
2.8	Environmental biotechnology								
2.9	Industrial biotechnology								
2.10	Nanotechnology								
2.11	Other engineering and technologies (food, beverages and other)								
3	MEDICAL AND HEALTH SCIENCES								
3.1	Basic medicine								
3.2	Clinical medicine								
3.3	Health sciences								
3.4	Medical biotechnology								
3.5	Other medical sciences (forensic and other medical sciences)								
4	AGRICULTURAL SCIENCES								
4.1	Agriculture, forestry and fisheries								
4.2	Animal and dairy science								
4.3	Veterinary science								
4.4	Agricultural biotechnology								
4.5	Other agricultural sciences								
5	SOCIAL SCIENCES								
5.1	Psychology								
5.2	Economics and business								
5.3	Educational sciences								
5.4	Sociology								
5.5	Law								
5.6	Political science								
5.7	Social and economic geography								
5.8	Media and communications								
5.9	Other social sciences								
6	HUMANITIES								
6.1	History and Archaeology								
6.2	Languages and literature								
6.3	Philosophy, ethics and religion								
6.4	Arts (arts, history of arts, performing arts, music)								
6.5	Other humanities								
	TOTAL								
	Control: Total number of doctorate holders from sheet P1				0				0

Notes:

Source of data:

REPORTING COUNTRY:

Table P6. NUMBER OF DOCTORATE HOLDERS BY SEX AND COUNTRY OF BIRTH

!! Please read note at end of table

	Year 2004			Year 2005			Year 2006		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
GRAND TOTAL									
Born in the reporting country									
Foreign born									
of which:									
permanent residents in the reporting country									
non-permanent residents in the reporting country									
Region of birth:									
Total European Union	0	0	0	0	0	0	0	0	0
Total OECD	0	0	0	0	0	0	0	0	0
Total non OECD	0	0	0	0	0	0	0	0	0
Region of birth:									
Total Africa									
Total America									
Total North America (Canada, Mexico, United States)	0	0	0	0	0	0	0	0	0
Total Central and South America	0	0	0	0	0	0	0	0	0
Total Asia									
Total Europe									
Total Oceania									
Country of birth:									
Argentina									
Austria									
Australia									
Belgium									
Bulgaria									
Canada									
China									
Croatia									
Cyprus									
Czech Republic									
Denmark									
Estonia									
Finland									
Former Yugoslav Republic of Macedonia									
France									
Germany									
Greece									
Hungary									
Iceland									
India									
Ireland									
Italy									
Japan									
Korea									
Latvia									
Lithuania									
Luxembourg									
Malaysia									
Malta									
Mexico									
Netherlands									
New Zealand									
Norway									
Poland									
Portugal									
Romania									
Russian Federation									
Slovak Republic									
Slovenia									
Spain									
Sweden									
Switzerland									
Turkey									
Uganda									
Ukraine									
United Kingdom									
United States									
xxx									
yyy									
zzz									
…									

Note: **Please, add any individual country for which there is a significant amount of foreign citizens in your country. If filling in individual country data poses confidentiality problems, please report observations to regional aggregate groupings only. For regional groupings that are not automatically calculated in the cells, please refer to: http://unstats.un.org/unsd/methods/m49/m49regin.htm**

Notes:

Source of data:

REPORTING COUNTRY:

Table P7. NUMBER OF DOCTORATE HOLDERS BY PLACE OF BIRTH/RESIDENTIAL STATUS AND AGE CLASS

	Year 2005				Year 2006			
	Born in the reporting country	Foreign born		Total	Born in the reporting country	Foreign born		Total
		Permanent residents	Non-permanent residents			Permanent residents	Non-permanent residents	
Less than 35 years old								
35-44 years old								
45-54 years old								
55-64 years old								
65-69 years old								
70 years old or more								
TOTAL								
Control: Total number of doctorate holders from sheet P1				0				0

Notes:

Source of data:

REPORTING COUNTRY:

Table P8. NUMBER OF DOCTORATE HOLDERS BY PLACE OF BIRTH/RESIDENTIAL STATUS AND FIELD OF DOCTORATE DEGREE

New OECD FOS classification		Year 2005				Year 2006			
		Born in the reporting country	Foreign born		Total	Born in the reporting country	Foreign born		Total
			Permanent residents	Non-permanent residents			Permanent residents	Non-permanent residents	
1	NATURAL SCIENCES								
1.1	Mathematics								
1.2	Computer and information sciences (excluding hardware development and social aspect)								
1.3	Physical sciences								
1.4	Chemical sciences								
1.5	Earth and environmental sciences								
1.6	Biological sciences (excluding medical and agricultural sciences)								
1.7	Other natural sciences								
2	ENGINEERING AND TECHNOLOGY								
2.1	Civil engineering								
2.2	Electrical engineering, electronic engineering, information engineering								
2.3	Mechanical engineering								
2.4	Chemical engineering								
2.5	Materials engineering								
2.6	Medical engineering								
2.7	Environmental engineering								
2.8	Environmental biotechnology								
2.9	Industrial biotechnology								
2.10	Nanotechnology								
2.11	Other engineering and technologies (food, beverages and other)								
3	MEDICAL AND HEALTH SCIENCES								
3.1	Basic medicine								
3.2	Clinical medicine								
3.3	Health sciences								
3.4	Medical biotechnology								
3.5	Other medical sciences (forensic and other medical sciences)								
4	AGRICULTURAL SCIENCES								
4.1	Agriculture, forestry and fisheries								
4.2	Animal and dairy science								
4.3	Veterinary science								
4.4	Agricultural biotechnology								
4.5	Other agricultural sciences								
5	SOCIAL SCIENCES								
5.1	Psychology								
5.2	Economics and business								
5.3	Educational sciences								
5.4	Sociology								
5.5	Law								
5.6	Political science								
5.7	Social and economic geography								
5.8	Media and communications								
5.9	Other social sciences								
6	HUMANITIES								
6.1	History and Archaeology								
6.2	Languages and literature								
6.3	Philosophy, ethics and religion								
6.4	Arts (arts, history of arts, performing arts, music)								
6.5	Other humanities								
	TOTAL								
	Control: Total number of doctorate holders from sheet P1				0				0

Notes:

Source of data:

REPORTING COUNTRY:

Table ED1. NUMBER OF DOCTORATE HOLDERS BY CITIZENSHIP/RESIDENTIAL STATUS AND COUNTRY OF DOCTORATE AWARD

YEAR(S) OF REFERENCE:

!! Please read note at end of table

	Citizens of the reporting country	Foreign citizens		Total
		Permanent residents	Non-permanent residents	
GRAND TOTAL				
Number who received their doctorate degree in the reporting country				
Number who received their doctorate degree in a foreign country				
Region of doctorate award:				
Total European Union	0	0	0	0
Total OECD	0	0	0	0
Total non OECD	0	0	0	0
Region of doctorate award:				
Total Africa				
Total America				
Total North America (Canada, Mexico, United States)	0	0	0	0
Total Central and South America	0	0	0	0
Total Asia				
Total Europe				
Total Oceania				
Country of doctorate award:				
Argentina				
Austria				
Australia				
Belgium				
Bulgaria				
Canada				
China				
Croatia				
Cyprus				
Czech Republic				
Denmark				
Estonia				
Finland				
Former Yugoslav Republic of Macedonia				
France				
Germany				
Greece				
Hungary				
Iceland				
India				
Ireland				
Italy				
Japan				
Korea				
Latvia				
Lithuania				
Luxembourg				
Malaysia				
Malta				
Mexico				
Netherlands				
New Zealand				
Norway				
Poland				
Portugal				
Romania				
Russian Federation				
Slovak Republic				
Slovenia				
Spain				
Sweden				
Switzerland				
Turkey				
Uganda				
Ukraine				
United Kingdom				
United States				
xxx				
yyy				
zzz				
…				

Note: **Please, add any individual country for which there is a significant amount of foreign citizens in your country. If filling in individual country data poses confidentiality problems, please report observations to regional aggregate groupings only. For regional groupings that are not automatically calculated in the cells, please refer to: http://unstats.un.org/unsd/methods/m49/m49regin.htm**

Notes:

Source of data:

REPORTING COUNTRY:

Table ED2. NUMBER OF DOCTORATE HOLDERS BY PLACE OF BIRTH/RESIDENTIAL STATUS AND COUNTRY OF DOCTORATE AWARD

YEAR(S) OF REFERENCE:

!! Please read note at end of table

	Born in the reporting country	Foreign born		Total
		Permanent residents	Non-permanent residents	
GRAND TOTAL				
Number who received their doctorate degree in the reporting country				
Number who received their doctorate degree in a foreign country				
Region of doctorate award:				
Total European Union	0	0	0	0
Total OECD	0	0	0	0
Total non OECD	0	0	0	0
Region of doctorate award:				
Total Africa				
Total America				
Total North America (Canada, Mexico, United States)	0	0	0	0
Total Central and South America	0	0	0	0
Total Asia				
Total Europe				
Total Oceania				
Country of doctorate award:				
Argentina				
Austria				
Australia				
Belgium				
Bulgaria				
Canada				
China				
Croatia				
Cyprus				
Czech Republic				
Denmark				
Estonia				
Finland				
Former Yugoslav Republic of Macedonia				
France				
Germany				
Greece				
Hungary				
Iceland				
India				
Ireland				
Italy				
Japan				
Korea				
Latvia				
Lithuania				
Luxembourg				
Malaysia				
Malta				
Mexico				
Netherlands				
New Zealand				
Norway				
Poland				
Portugal				
Romania				
Russian Federation				
Slovak Republic				
Slovenia				
Spain				
Sweden				
Switzerland				
Turkey				
Uganda				
Ukraine				
United Kingdom				
United States				
xxx				
yyy				
zzz				
…				

Note: **Please, add any individual country for which there is a significant amount of foreign citizens in your country. If filling in individual country data poses confidentiality problems, please report observations to regional aggregate groupings only. For regional groupings that are not automatically calculated in the cells, please refer to: http://unstats.un.org/unsd/methods/m49/m49regin.htm**

Notes:

Source of data:

REPORTING COUNTRY:

Table ED3. NUMBER OF DOCTORATE HOLDERS BY COUNTRY OF DOCTORATE AWARD AND OF PRIOR EDUCATION

YEAR(S) OF REFERENCE:

Place of prior education	Place of doctoral degree award		
	In the reporting country	In another country	Total
Previous degree in the reporting country			
Previous degree not in the reporting country			
of which: in the same country as the doctorate			
TOTAL			

Notes:

Source of data:

REPORTING COUNTRY:

Table ED4. RECENT DOCTORATE RECIPENTS: AGE AT GRADUATION AND TIME TO COMPLETION BY MAIN FIELD OF DOCTORATE DEGREE

YEAR(S) OF REFERENCE:

Total	Number of recent doctorate recipients	Age at graduation (in years)		Time to completion (in months)	
		average	median	average	median
Natural sciences					
Engineering and technology					
Medical sciences					
Agricultural sciences					
Social sciences					
Humanities					
TOTAL					
Control: Computed total average					

Men	Number of recent doctorate recipients	Age at graduation (in years)		Time to completion (in months)	
		average	median	average	median
Natural sciences					
Engineering and technology					
Medical sciences					
Agricultural sciences					
Social sciences					
Humanities					
TOTAL					
Control: Computed total average					

Women	Number of recent doctorate recipients	Age at graduation (in years)		Time to completion (in months)	
		average	median	average	median
Natural sciences					
Engineering and technology					
Medical sciences					
Agricultural sciences					
Social sciences					
Humanities					
TOTAL					
Control: Computed total average					

Notes:

Source of data:

REPORTING COUNTRY:

Table ED5. NUMBER OF DOCTORATE HOLDERS BY PRIMARY SOURCE OF FUNDING DURING COMPLETION OF DOCTORATE

YEAR(S) OF REFERENCE:

	Natural sciences	Engineering and technology	Medical sciences	Agricultural sciences	Social sciences	Humanities	TOTAL
Primary source of funding							
Fellowship, scholarship from an institution in the country							
Fellowship, scholarship from abroad							
Teaching and/or research assistantship							
Other occupation							
Employer's reimbursement/assistance							
Loan, personal savings, spouse's, partner's or family support							
Other							
Unknown							
Number of respondents							

Notes:

Source of data:

REPORTING COUNTRY:

Table EMP1. NUMBER OF DOCTORATE HOLDERS BY EMPLOYMENT STATUS AND YEAR OF DOCTORATE AWARD

YEAR(S) OF REFERENCE:

Total	Employed						Unemployed	Inactive	Total
Year of doctorate award	Paid employment	Self-employed	Permanent employment	Temporary employment	Full-time employment	Part-time employment			
…									
1990									
1991									
1992									
1993									
1994									
1995									
1996									
1997									
1998									
1999									
2000									
2001									
2002									
2003									
2004									
2005									
2006									
All years									
Control: Total employed	0		0		0				

Men	Employed						Unemployed	Inactive	Total
Year of doctorate award	Paid employment	Self-employed	Permanent employment	Temporary employment	Full-time employment	Part-time employment			
…									
1990									
1991									
1992									
1993									
1994									
1995									
1996									
1997									
1998									
1999									
2000									
2001									
2002									
2003									
2004									
2005									
2006									
All years									
Control: Total employed	0		0		0				

Women	Employed						Unemployed	Inactive	Total
Year of doctorate award	Paid employment	Self-employed	Permanent employment	Temporary employment	Full-time employment	Part-time employment			
…									
1990									
1991									
1992									
1993									
1994									
1995									
1996									
1997									
1998									
1999									
2000									
2001									
2002									
2003									
2004									
2005									
2006									
All years									
Control: Total employed	0		0		0				

Notes:

Source of data:

REPORTING COUNTRY:

Table EMP2. NUMBER OF DOCTORATE HOLDERS BY EMPLOYMENT STATUS, FIELD OF DOCTORATE DEGREE AND AGE

YEAR(S) OF REFERENCE:

Field of doctorate degree	Employed						Unemployed	Inactive	Total
	Paid employment	Self-employed	Permanent employment	Temporary employment	Full-time employment	Part-time employment			
Natural sciences									
Engineering and technology									
Medical sciences									
Agricultural sciences									
Social sciences									
Humanities									
TOTAL									
Control: Total employed	0		0		0				

Notes:

Source of data:

Age	Employed						Unemployed	Inactive	Total
	Paid employment	Self-employed	Permanent employment	Temporary employment	Full-time employment	Part-time employment			
Less than 35 years old									
35-44 years old									
45-54 years old									
55-64 years old									
65-69 years old									
70 years old or more									
TOTAL									
Control: Total employed	0		0		0				

Notes:

Source of data:

REPORTING COUNTRY:

Table EMP3. NUMBER OF RECENT DOCTORATE RECIPIENTS BY PRIMARY SOURCE OF FUNDING DURING COMPLETION OF DOCTORATE AND EMPLOYMENT STATUS

YEAR(S) OF REFERENCE:

	Employed						Unemployed	Inactive	Total
Primary source of funding	**Paid employment**	**Self-employed**	**Permanent employment**	**Temporary employment**	**Full-time employment**	**Part-time employment**			
Fellowship, scholarship from an institution in the country									
Fellowship, scholarship from abroad									
Teaching and/or research assistantship									
Other occupation									
Employer's reimbursement/assistance									
Loan, personal savings, spouse's, partner's or family support									
Other									
Unknown									
Number of respondents									
Control: Total employed	0		0		0				

Notes:

Source of data:

REPORTING COUNTRY:

Table EMP4. OCCUPATIONS OF EMPLOYED DOCTORATE HOLDERS BY FIELD OF DOCTORATE DEGREE

YEAR(S) OF REFERENCE:

ISCO-88 code	ISCO-88 title	Natural sciences	Engineering and technology	Medical sciences	Agricultural sciences	Social sciences	Humanities	TOTAL
1	LEGISLATORS, SENIOR OFFICIALS AND MANAGERS							
2	PROFESSIONALS							
21	Physical, mathematical and engineering science professionals							
211	Physicists, chemists and related professionals							
212	Mathematicians, statisticians and related professionals							
213	Computing professionals							
214	Architects, engineers and related professionals							
22	Life science and health professionals							
221	Life science professionals							
222	Health professionals (except nursing)							
223	Nursing and midwifery professionals							
23	Teaching professionals							
231	College, university and higher education teaching professionals							
232	Secondary education teaching professionals							
233 to 235	Other teaching professionals							
24	Other professionals							
241	Business professionals							
242	Legal professionals							
243	Archivists, librarians and related information professionals							
244	Social science and related professionals							
245	Writers and creative or performing artists							
246	Religious professionals							
Other	Other ISCO-88 groups							
TOTAL	Total							

Notes:

Source of data:

REPORTING COUNTRY:

Table EMP5. NUMBER OF DOCTORATE HOLDERS EMPLOYED AS RESEARCHERS BY FIELD OF DOCTORATE DEGREE

YEAR(S) OF REFERENCE:

Total

Field of doctorate degree	Total	Sector of employment				*of which:* postdocs
		Business enterprise sector	Government sector	Higher education sector	Private non-profit sector	
Natural sciences Engineering and technology Medical sciences Agricultural sciences Social sciences Humanities TOTAL						

Men

Field of doctorate degree	Total	Sector of employment				*of which:* postdocs
		Business enterprise sector	Government sector	Higher education sector	Private non-profit sector	
Natural sciences Engineering and technology Medical sciences Agricultural sciences Social sciences Humanities TOTAL						

Women

Field of doctorate degree	Total	Sector of employment				*of which:* postdocs
		Business enterprise sector	Government sector	Higher education sector	Private non-profit sector	
Natural sciences Engineering and technology Medical sciences Agricultural sciences Social sciences Humanities TOTAL						

Notes:

Source of data:

REPORTING COUNTRY:

Table EMP6. MEDIAN GROSS ANNUAL EARNINGS OF EMPLOYED DOCTORATE HOLDERS (national currency)

YEAR(S) OF REFERENCE:

Total

	Employed as researcher						Not employed as researcher					
		Sector of employment						Sector of employment				
Field of doctorate degree	TOTAL	Business enterprise sector	Government sector	Higher education sector	Private non-profit sector	*of which:* postdocs	TOTAL	Business enterprise sector	Government sector	Higher education sector	Other education	Private non-profit sector
Natural sciences												
Engineering and technology												
Medical sciences												
Agricultural sciences												
Social sciences												
Humanities												
TOTAL												

Men

	Employed as researcher						Not employed as researcher					
		Sector of employment						Sector of employment				
Field of doctorate degree	TOTAL	Business enterprise sector	Government sector	Higher education sector	Private non-profit sector	*of which:* postdocs	TOTAL	Business enterprise sector	Government sector	Higher education sector	Other education	Private non-profit sector
Natural sciences												
Engineering and technology												
Medical sciences												
Agricultural sciences												
Social sciences												
Humanities												
TOTAL												

Women

	Employed as researcher						Not employed as researcher					
		Sector of employment						Sector of employment				
Field of doctorate degree	TOTAL	Business enterprise sector	Government sector	Higher education sector	Private non-profit sector	*of which:* postdocs	TOTAL	Business enterprise sector	Government sector	Higher education sector	Other education	Private non-profit sector
Natural sciences												
Engineering and technology												
Medical sciences												
Agricultural sciences												
Social sciences												
Humanities												
TOTAL												

Notes:

Source of data:

REPORTING COUNTRY:

Table EMP7. GROSS ANNUAL EARNINGS OF EMPLOYED RECENT DOCTORATE RECIPIENTS BY SOURCE OF FUNDING DURING COMPLETION OF DOCTORATE (optional)

YEAR(S) OF REFERENCE:

	Average gross annual earnings (national currency)			Median gross annual earnings (national currency)		
Primary source of funding	Total	Employed as researcher	Not employed as researcher	Total	Employed as researcher	Not employed as researcher
Fellowship, scholarship from an institution in the country						
Fellowship, scholarship from abroad						
Teaching and/or research assistantship						
Other occupation						
Employer's reimbursement/assistance						
Loan, personal savings, spouse's, partner's or family support						
Other						
Unknown						
Number of respondents						

Notes:

Source of data:

REPORTING COUNTRY:

Table EMP8. JOB TO JOB MOBILITY: LENGTH OF STAY WITH THE SAME EMPLOYER

YEAR(S) OF REFERENCE:

Current activity	Not employed as researcher	Employed as researcher					Total
		Total research	Business enterprise sector	Government sector	Higher education sector	Private non-profit sector	
With the same employer for:							
Less than 1 year							
1 to < 2 years							
2 to < 3 years							
3 to < 4 years							
4 to < 5 years							
5 to < 10 years							
10 years or more							
Unknown							
TOTAL							

Notes:

Source of data:

REPORTING COUNTRY:

Table PERC1. PERCEPTION OF DOCTORATE HOLDERS REGARDING THEIR JOB QUALIFICATION

YEAR(S) OF REFERENCE:

Year of doctorate award	Job related to the doctoral degree			Job partly related to the doctoral degree			Job not related to the doctoral degree		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
…									
1990									
1991									
1992									
1993									
1994									
1995									
1996									
1997									
1998									
1999									
2000									
2001									
2002									
2003									
2004									
2005									
2006									
All years									

Notes:

Source of data:

REPORTING COUNTRY:

Table PERC2. SATISFACTION OF DOCTORATE HOLDERS WITH THEIR EMPLOYMENT SITUATION

YEAR(S) OF REFERENCE:

	Very satisfied			Somewhat satisfied			Somewhat dissatisfied			Very dissatisfied		
Criteria	**Men**	**Women**	**Total**	**Men**	**Women**	**Total**	**Men**	**Women**	**Total**	**Men**	**Women**	**Total**
Salary												
Benefits												
Job security												
Location												
Working conditions												
Opportunities for advancement												
Intellectual challenge												
Level of responsibility												
Degree of independence												
Contribution to society												
Social status												

Notes:

Source of data:

REPORTING COUNTRY:

Table IMOB1. NUMBER OF DOCTORATE HOLDERS BY CITIZENSHIP/RESIDENTIAL STATUS AND LENGTH OF STAY IN THE COUNTRY

YEAR(S) OF REFERENCE:

Length of stay in the reporting country	Citizens of the reporting country	Foreign citizens		Total
		Permanent residents	Non-permanent residents	
Less than 1 year				
1 to < 2 years				
2 to < 3 years				
3 to < 4 years				
4 to < 5 years				
5 to < 10 years				
10 years or more				
TOTAL				

Notes:

Source of data:

REPORTING COUNTRY:

Table IMOB2. NUMBER OF DOCTORATE HOLDERS BY CITIZENSHIP/RESIDENTIAL STATUS AND PREVIOUS COUNTRY OF RESIDENCE

YEAR(S) OF REFERENCE:

!! Please read note at end of table

Previous country of residence	Citizens of the reporting country	Foreign citizens		Total
		Permanent residents	Non-permanent residents	
TOTAL NUMBER OF DOCTORATE HOLDERS				
Previous region of residence:				
Total European Union	0	0	0	0
Total OECD	0	0	0	0
Total non OECD	0	0	0	0
Previous region of residence:				
Total Africa				
Total America				
Total North America (Canada, Mexico, United States)	0	0	0	0
Total Central and South America	0	0	0	0
Total Asia				
Total Europe				
Total Oceania				
Previous country of residence:				
Argentina				
Austria				
Australia				
Belgium				
Bulgaria				
Canada				
China				
Croatia				
Cyprus				
Czech Republic				
Denmark				
Estonia				
Finland				
Former Yugoslav Republic of Macedonia				
France				
Germany				
Greece				
Hungary				
Iceland				
India				
Ireland				
Italy				
Japan				
Korea				
Latvia				
Lithuania				
Luxembourg				
Malaysia				
Malta				
Mexico				
Netherlands				
New Zealand				
Norway				
Poland				
Portugal				
Romania				
Russian Federation				
Slovak Republic				
Slovenia				
Spain				
Sweden				
Switzerland				
Turkey				
Uganda				
Ukraine				
United Kingdom				
United States				
xxx				
yyy				
zzz				
…				

Note: **Please, add any individual country for which there is a significant amount of foreign citizens in your country. If filling in individual country data poses confidentiality problems, please report observations to regional aggregate groupings only. For regional groupings that are not automatically calculated in the cells, please refer to: http://unstats.un.org/unsd/methods/m49/m49regin.htm**

Notes:

Source of data:

REPORTING COUNTRY:

Table IMOB3. REASONS FOR MOVING INTO THE COUNTRY FOR DOCTORATE HOLDERS HAVING ENTERED THE COUNTRY IN THE LAST FIVE OR TEN YEARS

YEAR(S) OF REFERENCE:

Entered the country in the last five years	Citizens of the reporting country	Foreign citizens		Total
		Permanent residents	Non-permanent residents	
(Multiple answers possible)				
Completion of doctorate				
End of postdoc or job contract				
Other job related factors[1]				
Academic factors[2]				
Personal, economic or political reasons[3]				
Other reason				
Number of respondents				

1. Other job related factors: sent by employer, job or postdoc offer, better paid job or postdoc, job search, guarantee or ease to find job.
2. Academic factors: better access to publishing, development or continuity of thesis work, work in a specific area not existent in the country, possibility of creation of own research team or new research area.
3. Includes refugees, end of residence permit or visa.

Entered the country five to ten years ago	Citizens of the reporting country	Foreign citizens		Total
		Permanent residents	Non-permanent residents	
(Multiple answers possible)				
Completion of doctorate				
End of postdoc or job contract				
Other job related factors[1]				
Academic factors[2]				
Personal, economic or political reasons[3]				
Other reason				
Number of respondents				

1. Other job related factors: sent by employer, job or postdoc offer, better paid job or postdoc, job search, guarantee or ease to find job.
2. Academic factors: better access to publishing, development or continuity of thesis work, work in a specific area not existent in the country, possibility of creation of own research team or new research area.
3. Includes refugees, end of residence permit or visa.

Notes:

Source of data:

REPORTING COUNTRY:

Table OMOB1. INTENTIONS TO MOVE OUT OF THE COUNTRY IN THE NEXT YEAR BY COUNTRY OF INTENDED DESTINATION (optional)

YEAR(S) OF REFERENCE:

!! Please read note at end of table

	Citizens of the reporting country	Foreign citizens		Total
		Permanent residents	Non-permanent residents	
No intention to move out of the country				
Intention to move out of the country				
Region of destination:				
To a European Union country	0	0	0	0
To an OECD country	0	0	0	0
To a non OECD country	0	0	0	0
Region of destination:				
To Africa				
To America				
Total North America (Canada, Mexico, United States)	0	0	0	0
Total Central and South America	0	0	0	0
To Asia				
To Europe				
To Oceania				
Country of destination:				
Argentina				
Austria				
Australia				
Belgium				
Bulgaria				
Canada				
China				
Croatia				
Cyprus				
Czech Republic				
Denmark				
Estonia				
Finland				
Former Yugoslav Republic of Macedonia				
France				
Germany				
Greece				
Hungary				
Iceland				
India				
Ireland				
Italy				
Japan				
Korea				
Latvia				
Lithuania				
Luxembourg				
Malaysia				
Malta				
Mexico				
Netherlands				
New Zealand				
Norway				
Poland				
Portugal				
Romania				
Russian Federation				
Slovak Republic				
Slovenia				
Spain				
Sweden				
Switzerland				
Turkey				
Uganda				
Ukraine				
United Kingdom				
United States				
xxx				
yyy				
zzz				
…				

Note: **Please, add any individual country for which there is a significant amount of foreign citizens in your country. If filling in individual country data poses confidentiality problems, please report observations to regional aggregate groupings only. For regional groupings that are not automatically calculated in the cells, please refer to: http://unstats.un.org/unsd/methods/m49/m49regin.htm**

Notes:

Source of data:

REPORTING COUNTRY:

Table OMOB2. REASONS FOR INTENTIONS TO MOVE OUT OF THE COUNTRY IN THE NEXT YEAR (optional)

YEAR(S) OF REFERENCE:

	Citizens of the reporting country	Foreign citizens		Total
		Permanent residents	Non-permanent residents	
(Multiple answers possible)				
Completion of doctorate				
End of postdoc or job contract				
Other job related factors[1]				
Academic factors[2]				
Personal, economic or political reasons[3]				
Other reason				
Number of respondents				

1. Other job related factors: sent by employer, job or postdoc offer, better paid job or postdoc, job search, guarantee or ease to find job.
2. Academic factors: better access to publishing, development or continuity of thesis work, work in a specific area not existent in the country, possibility of creation of own research team or new research area.
3. Includes refugees, end of residence permit or visa.

Notes:

Source of data:

REPORTING COUNTRY:

Table OMOB3. NUMBER OF DOCTORATE HOLDERS HAVING LEFT THE COUNTRY IN THE LAST FIVE OR TEN YEARS BY CITIZENSHIP/RESIDENT STATUS AND COUNTRY OF DESTINATION (optional)

YEAR(S) OF REFERENCE:

!! Please read note at end of table

Left in the last five years	Citizens of the reporting country	Foreign citizens		Total
		Permanent residents	Non-permanent residents	
TOTAL HAVING LEFT				
Region of destination:				
To a European Union country	0	0	0	0
To an OECD country	0	0	0	0
To a non OECD country	0	0	0	0
Region of destination:				
To Africa				
To America				
Total North America (Canada, Mexico, United States)	0	0	0	0
Total Central and South America	0	0	0	0
To Asia				
To Europe				
To Oceania				
Country of destination:				
Argentina				
Austria				
Australia				
Belgium				
Bulgaria				
Canada				
China				
Croatia				
Cyprus				
Czech Republic				
Denmark				
Estonia				
Finland				
Former Yugoslav Republic of Macedonia				
France				
Germany				
Greece				
Hungary				
Iceland				
India				
Ireland				
Italy				
Japan				
Korea				
Latvia				
Lithuania				
Luxembourg				
Malaysia				
Malta				
Mexico				
Netherlands				
New Zealand				
Norway				
Poland				
Portugal				
Romania				
Russian Federation				
Slovak Republic				
Slovenia				
Spain				
Sweden				
Switzerland				
Turkey				
Uganda				
Ukraine				
United Kingdom				
United States				
xxx				
yyy				
zzz				
...				

Note: Please, add any individual country for which there is a significant amount of foreign citizens in your country. If filling in individual country data poses confidentiality problems, please report observations to regional aggregate groupings only. For regional groupings that are not automatically calculated in the cells, please refer to: http://unstats.un.org/unsd/methods/m49/m49regin.htm

Notes:

Source of data:

!! Please read note at end of table

Left five to ten years ago	Citizens of the reporting country	Foreign citizens		Total
		Permanent residents	Non-permanent residents	
TOTAL HAVING LEFT				
Region of destination:				
To a European Union country	0	0	0	0
To an OECD country	0	0	0	0
To a non OECD country	0	0	0	0
Region of destination:				
To Africa				
To America				
Total North America (Canada, Mexico, United States)	0	0	0	0
Total Central and South America	0	0	0	0
To Asia				
To Europe				
To Oceania				
Country of destination:				
Argentina				
Austria				
Australia				
Belgium				
Bulgaria				
Canada				
China				
Croatia				
Cyprus				
Czech Republic				
Denmark				
Estonia				
Finland				
Former Yugoslav Republic of Macedonia				
France				
Germany				
Greece				
Hungary				
Iceland				
India				
Ireland				
Italy				
Japan				
Korea				
Latvia				
Lithuania				
Luxembourg				
Malaysia				
Malta				
Mexico				
Netherlands				
New Zealand				
Norway				
Poland				
Portugal				
Romania				
Russian Federation				
Slovak Republic				
Slovenia				
Spain				
Sweden				
Switzerland				
Turkey				
Uganda				
Ukraine				
United Kingdom				
United States				
xxx				
yyy				
zzz				
...				

Note: Please, add any individual country for which there is a significant amount of foreign citizens in your country. If filling in individual country data poses confidentiality problems, please report observations to regional aggregate groupings only. For regional groupings that are not automatically calculated in the cells, please refer to: http://unstats.un.org/unsd/methods/m49/m49regin.htm

Notes:

Source of data:

REPORTING COUNTRY:

Table OMOB4. REASONS FOR MOVING OUT OF THE COUNTRY IN THE LAST FIVE OR TEN YEARS (optional)

YEAR(S) OF REFERENCE:

Left in the last five years	Citizens of the reporting country	Foreign citizens		Total
		Permanent residents	Non-permanent residents	
(Multiple answers possible)				
Completion of doctorate				
End of postdoc or job contract				
Other job related factors[1]				
Academic factors[2]				
Personal, economic or political reasons[3]				
Other reason				
Number of respondents				

1. Other job related factors: sent by employer, job or postdoc offer, better paid job or postdoc, job search, guarantee or ease to find job.
2. Academic factors: better access to publishing, development or continuity of thesis work, work in a specific area not existent in the country, possibility of creation of own research team or new research area.
3. Includes refugees, end of residence permit or visa.

Left five to ten years ago	Citizens of the reporting country	Foreign citizens		Total
		Permanent residents	Non-permanent residents	
(Multiple answers possible)				
Completion of doctorate				
End of postdoc or job contract				
Other job related factors[1]				
Academic factors[2]				
Personal, economic or political reasons[3]				
Other reason				
Number of respondents				

1. Other job related factors: sent by employer, job or postdoc offer, better paid job or postdoc, job search, guarantee or ease to find job.
2. Academic factors: better access to publishing, development or continuity of thesis work, work in a specific area not existent in the country, possibility of creation of own research team or new research area.
3. Includes refugees, end of residence permit or visa.

Notes:

Source of data:

REPORTING COUNTRY:

Table OUTP1. AVERAGE OUTPUT OF DOCTORATE HOLDERS WORKING AS RESEARCHERS IN THE LAST THREE YEARS (BY FIELD OF DOCTORATE DEGREE AND BY AGE)

YEAR(S) OF REFERENCE:

Field of doctorate degree	Number of doctorate holders working as researchers	Articles	Books	Named as inventors in patents	Patents granted	Commercialised products or processes or patents licensed	Start-up companies
		Average number in the last three years:					
Natural sciences							
Engineering and technology							
Medical sciences							
Agricultural sciences							
Social sciences							
Humanities							
TOTAL							
Control: Computed total average							

Notes:

Source of data:

Age	Number of doctorate holders working as researchers	Articles	Books	Named as inventors in patents	Patents granted	Commercialised products or processes or patents licensed	Start-up companies
		Average number in the last three years:					
Less than 35 years old							
35-44 years old							
45-54 years old							
55-64 years old							
65-69 years old							
70 years old or more							
TOTAL							
Control: Computed total average							

Notes:

Source of data:

REPORTING COUNTRY:

Table OUTP2. AVERAGE OUTPUT OF DOCTORATE HOLDERS WORKING AS RESEARCHERS IN THE LAST THREE YEARS (BY SEX AND CITIZENSHIP/RESIDENTIAL STATUS)

YEAR(S) OF REFERENCE:

	Number of doctorate holders working as researchers	Articles	Books	Named as inventors in patents	Patents granted	Commercialised products or processes or patents licensed	Start-up companies
		Average number in the last three years:					
Men							
Women							
Total							

Control: Computed total average
Notes:

Source of data:

	Number of doctorate holders working as researchers	Articles	Books	Named as inventors in patents	Patents granted	Commercialised products or processes or patents licensed	Start-up companies
		Average number in the last three years:					
Citizens of the reporting country							
Foreign citizens who are permanent residents							
Foreign citizens who are non-permanent residents							
Total							

Control: Computed total average
Notes:

Source of data: